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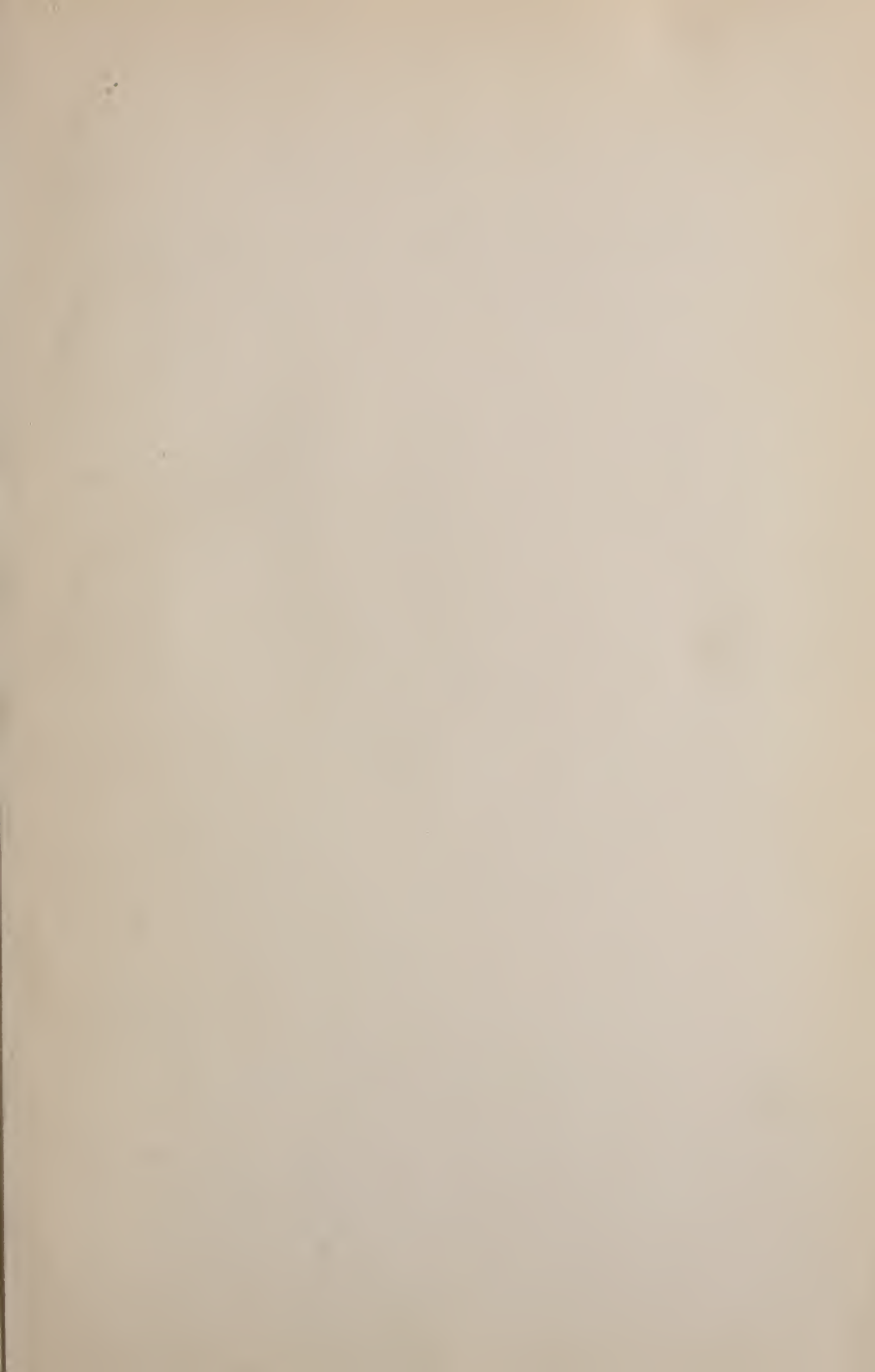
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The American Journal of Urology

GENITO-URINARY AND VENEREAL DISEASES

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OF NEW YORK

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Index to Principal Subjects

Abscess, Perinephritic, Primary	523
Anesthesia, Local, by urethral lubricants	520
Aneurisms of the Aorta. Mercury and Iodides in	221
Antigonococcic Serum and Bacterins	382
Antigonococcic Serum and Bacterins in gonorrheal arthritis	585
Antigonococcus Serum. Use of	522
Anuria. Calculous, Mechanical theory of	577
Anuria. Calculous, Suppression of Urine simulating	42
Anuria. Obstructive Calculous	18
Anuria. Toxic, due to bichloride of mercury	548
Arsacetin in Syphilis	258
Bacterial vaccines in infections of urinary tract	585
Bacteriuria. Rebelious	77
Bacterin Therapy in Urethral and Prostatic Infections	341
Bacterins, Antigonococcic, and Serum	382
Belt, Perineal for retention of dressings	488
Beta-Eucaine anesthesia in proctology	588
Bilharzia Infection and Stone	150
Bilharzia Infection. A Vesical Tumor in	270
Bismuth Paste in Urinary Surgery. Injections	405
Bladder—see also Vesical.	
Bladder, cauterization of, with silver nitrate. The formation of stone after	224
Bladder, Exstrophy of the, The results of treatment in	163
Bladder, Extirpation of the	162
Bladder, Gauze Tampon in the, after Hernia operation	217
Bladder, Implantation of the Ureter into the	224
Bladder, Injuries of, The prevention of, after operations for cancer of the cervix	223
Bladder, Intravesical Growths of, Metal drainage tubes for bladder ir- rigation after section for	59
Bladder. Iodoform-Gauze Tampon in	I
Bladder irrigation. A metal drainage tube for continuous	59
Bladder, Malignant Disease of the, The treatment of	244
Discussion	272
Bladder. Neoplasms of, Removal of	542
Bladder Neoplasms. Transperitoneal removal of	98
Bladder, Papilloma of the, Recurrent, treated by high frequency	269
Bladder. Rupture of the	452
Bladder. Stone in the, Encysted	253
Bladder. Tuberculosis to the, Experimental Study of Transmission of	525
Bladder. Tumor of the	403
Blood Pressure in Surgical Affections	363
Book Notices	57, 319, 544, 591
Bubo of Chancroid and its treatment	431
Cacodylate of Mercury in Hypodermic Treatment of Syphilis	286
Calculi in the Ureters	407
Calculi, Renal	46
Calculi, Renal, Interesting case of	545

INDEX

Calculi, Ureteral	210
Calculi, Ureteral, Multiple, in a child	358
Calculi, Urethral. Some cases of	13
Calculi, Urinary, in Finland	567
Calculus Anuria. Obstructive	18
Calculus Anuria. Suppression of Urine simulating	42
Calculus. Perforation of Portion of Ureter by a	449
Calculus. Encysted Vesical, with Pedicle	267
Calculus. Vesical, removed by repeated crushing	68
Cammidge Reaction in the Urine	46
Catheterization, Ureteral and Separators	529
Catheters, sterile and dry	567
Chancre—see Lesions.	
Chancre of the Bucco—Pharyngeal Cavity	456
Chancres of the Abdomen. Giant Multiple	152
Chancroid, Bubo of, and its Treatment	431
Chyluria	212
Circumcision operation for the Young	40
Colic, Renal, Ameliorating	316
Colic, Renal, New Method of relief of	153
Collargol in Genito-Urinary Surgery. The Use of	190
Collargol in Gonorrhea	267
Collargol in the various forms of cystitis	98
Colliculus Seminalis. Chronic Disease of the	208
Cystitis, Painful	43
Cystitis, Collargol in the various forms of	98
Cystitis, Postoperative, The treatment of severe	222
Cystoscopes and Cysto-Urethroscopes	442
Cystoscopes, Combination of Casper's operation and catheterizing	316
Cystoscopes, New	218
Cystoscopes, Operative. Endovesical operations and	410
Cystoscopes, The Bransford Lewis	411
Cystoscopy and Ureteral Catheterization in infants and children	535
Cystotomy, Suprapubic, with an empty bladder	257
Cysto-Urethroscope. New	459
Decapsulation, Renal in Eclampsia	400, 460
Decapsulation, Renal in Eclampsia, Eclamptic oliguria	400
Drainage tube, metal, for continuous bladder irrigation	59
Dungern's reaction in syphilis	500
Eclampsia and Renal Decapsulation	400, 460
Eclamptic Oliguria	400
Ectopic Kidney, Crossed	495
Ehrlich-Hata remedy for Syphilis	503, 539, 581, 582, 583, 588
Ehrlich-Hata remedy, discussion of	590
Ehrlich-Hata remedy, effect of on nursling when administered to mother	581
Electric Treatment for Syphilis	156
Electrolysis, Circular, New Methods of, in Stricture	214
Embroyoma of the Kidney	463
Endovesical operations	410
Endovesical Separation of Urine versus Ureteral Catheter	532
Epididymitis. Acute, Ambulatory Treatment of	536
Epididymitis. Gonorrheal, Operative Treatment of	43
Epididymitis. Gonorrheal, Treatment of	498
Epididymo-Vasostomy for the relief of Sterility	197

INDEX

Eugallol, New Use of	462
Exstrophy of the Bladder. The results of treatment of	163
False Passages	256
Faradic Treatment superior to Massage in Prostatitis	4
Felon due to the gonococcus	94
Fever, Mercurial	259
Fibrolysin in treatment of Stricture	95
Fistula. Urinary, Report of Persistence of	137
Fistulæ, Vesico-vaginal, involving the Ureter	492
Foreign-body in the Urethra	95
Gangrene of the Penis and Scrotum	79
Gauze-Tampon in the Bladder after Hernia Operation	217
Gauze-Tampon in the Bladder for nearly ten months	1
Genital Diseases, Electric Treatment of	156
Genital Organs, Radical Operation for Tuberculosis of	62
Genito-Urinary Surgery of To-day—Editorial	354
Genito-Urinary System, functional disorders of	586
Gonococcemia	264
Gonococci or False Gonococci	258
Gonococcus. Felon due to the	194
Gonococcus Infection, Ascending	225
Gonococcus Infection. Canal Block following	248
Gonococcus Infection. Perinephritic Abscess due to	523
Gonococcus Invasion into Bones, Joints	445
Gonococcus Serum and Bacterin	154
Gonorrhea, acute, abortive treatment of	578
Gonorrhea, chronic	96
Gonorrhea, Collargol in	267
Gonorrhea in little Girls	156
Gonorrhea in the Prostate	391
Gonorrhea. Pathology of	362
Gonorrhea. The Origin of Phosphaturia in	253
Gonorrhea. Treating, by a new method	247
Gonorrhea. Treatment of Importance of Balsams in the	47
Gonorrhea. Urethral and Periurethral Complications of	478
Gonorrheal Epididymitis. Operative Treatment of	43
Gonorrheal Epididymitis. Treatment of	498
Growths—Superarenal	216
Gummas of the Tendons	219
Hegonon	542
Hematocele. Multilocular	255
Hematuria. Diagnosis of essential	171
Hematurias. Renal, Pathogenesis of	355
Hemorrhage. Vesical, Treatment of	291
Hemorrhages from the Male Urethra	348
Hydrocele. Extirpation of the unopened	97
Hydronephroses and Pseudo-Hydronephroses. Traumatic	312
Hydronephrosis due to occlusion of the Ureter	357
Hydronephrosis and horseshoe kidney	575
Hyperemia in the Urethra	96
Hyperemic Treatment of the Urethra with Hot Sounds	37
Implantation of the Ureter into the Bladder	399
Impotence and spermatorrhea due to disease of prostate	579
Incontinence due to Stricture	363

INDEX

Incontinence, congenital operation for	570
Intercourse. Sexual, A physiological interpretation	73
Ionization in Infections of Urinary Tract	526
Irrigator, Urethral, with massage of the Canal	531
Jaundice, Hemolytic, in Syphilis	365
Kidney—see Renal.	
Kidney, absence of, Ureter and Blood-vessels	325
Kidney, Cyst Formation in	521
Kidney, Cysts of, Large Solitary	534
Kidney, Ectopic, crossed	495
Kidney, Ectopic with stone in Pelvis	523
Kidney, Embryoma of	463
Kidney, Horseshoe, and hydronephrosis	575
Kidney, Function of, after Nephrectomy	565
Kidney, Large Polycystic, Etiology of—editorial	490
Kidney, Mobile, Surgical aspect of	332
Kidney, Resection of	182
Kidney, Venous Circulation of the	495
Kidneys, cystic	564
Kidneys, gonococcic infection of	587
Kidneys, Stroma of	569
Kidneys, Effect of Momburg's ligature on the	572
Lesions, Primary, in Children under Fifteen	366
Leukofermantin in para-urethral abscess	571
Lubricants for catheters and urethral cystoscopes	589
Meatoscopy of the Ureters	261
Meatotomy. The technique of	494
Meioffsky's method of staining spirochaeta in living state	578
Mercurial Fever	259
Mercury and Iodides in Aneurisms of the Aorta	221
Mercury, Cacodylate of, in the Hypodermic Treatment of Syphilis	286
Mergal in Syphilis	543
Mowburg's ligature, effect of on the kidneys	572
Neoplasms. Bladder, Transperitoneal Removal of	98
Neoplasms of the Bladder, Removal of	542
Nephrectomies, One Hundred	45
Nephaectomy, function of kidney after	565
Nephrectomy, Forci-Pressure applied in	533
Nephrectomy. Forci-Pressure methodically applied in	498
Nephrectomy. Pedicle Clamps in Secondary	260
Nephritis. Hematuric Unilateral, Diagnosis and Treatment of	404
Nephritis in Dogs	520
Nephritis, Syphilitic	34
Nephropexy, sixty-six cases of	576
Noguchi's System of Sero-Diagnosis of Syphilis	44
Oliguria, Eclamptic	400
Papilloma, Recurrent, of the Bladder, treated by High Frequency	269
Papilloma, Vesical, occurring after removal of Epithelioma of Abdominal Parietes	261
Papillomas, Vesical, Origin and Transformation of	454
Pelvis. Surgical Exploration of	407
Penis, Gangrene of, and Scrotum	179
Penis, Horn of. Result of Excision of a	272
Perineal Belt, for retention of dressings	488

INDEX

Perinephritic Abscess, due to Gonococcus Infection	523
Phosphaturia in Gonorrhea. Origin of	253
Polyuria, Experimental	262
Porges reaction in syphilis	579
Practitioner as a Urologist, The General—editorial	31
Practitioners, General, Department 50, 108, 164, 277, 320,	419
Prostate. Electric Treatment of	252
Prostate. Gonorrhea in the	391
Prostate. Hypertrophy of. Action of Radium on—editorial	249
Prostate. Malignant disease of the	232
Discussion	272
Prostate. Physiology and Pathology of the	541
Prostatectomy, drainage tube, for continuous bladder irrigation after	59
Prostatectomy for Cancer	261
Prostatectomy, Perineal	519
Prostatectomy, Perineal Post-operative Treatment in	467
Prostatectomy, Suprapubic 48,	537
Prostatectomy, Suprapubic or Perineal, which?	227
Prostatectomy, Suprapubic, Question of Priority—editorial	310
Prostatectomy, Suprapubic. Two cases of sudden death after	454
Prostatectomy, Suprapubic versus Perineal—editorial	308
Prostatic Hypertrophy	312
Prostatic Hypertrophy, Diagnosis and Treatment	157
Prostatic Hypertrophy, Indications for operative procedures in	494
Prostatic Hypertrophy, Inflammatory Origin of	147
Prostatic Hypertrophy. Prostatic-Toxin in treatment of	314
Prostatic Infections. Report of Bacterin Therapy in	341
Prostatic Obstruction. End Results of	317
Prostatic Secretion, Physiological Functions of	417
Prostatic Surgery. Present Status of	299
Prostatic Surgery. Review of	319
Prostatitis Chronic, Etiology and Symptomatology	130
Prostatitis Chronic, with reference to treatment	369
Prostatitis Prostatic-Toxin in treatment of	314
Prostatitis, Why is Faradic Current superior to Massage in	4
Prostatic-Toxin, in treatment of Prostatitis and Prostatic Hypertrophy	314
Pus-Tubes in the Male	266
Pyelitis 149,	151
Pyelitis, Chronic, Treatment of, by Irrigations	402
Pyelonephritis	252
Pyelotomy for Stone 256,	364
Pyonephrosis, with normal urine	562
Quinine. Treatment of Syphilis with	417
Renal—see Kidney.	
Renal Activity and its Tests	264
Renal Calculi	46
Renal Calculi, Interesting case of	545
Renal Colic, Ameliorating	316
Renal Colic, New Method of Relief	153
Renal Decapsulation, Eclampsia and 400,	460
Renal Disease, Functional Diagnosis of	262
Renal Hematurias, Pathogenesis of	315
Renal Lesions, Case of Bilateral	423
Renal Pelvis, Lavage of the	461

INDEX

Renal Tuberculosis	42, 160
Renal Tuberculosis, Ascending	459
Renal Tuberculosis, Prognosis and Treatment of	39
Retention of Urine. Case of	70
Retention of Urine. Traumatic and post-operative	551
Retro-Peritoneal Infections	520
Rupture of the Bladder	452
Rupture of the Prostatic Urethra, Transverse	99
Scars following Acneiform Syphilides	153
Scrotum. Gangrene of	179
Separator. Ureteral Catheter versus the	531
Separators. Use of, Ureteral Catheter and the	529
Serum, Antigonococcus and Bacterins	382
Sexual Intercourse. A physiological interpretation	73
Shreds in the Urine without Urethritis	412
Specific, history of an old	575
Spirochaeta, staining of, by Meiroffsky's method	578
Sterility. Epididymo-Vasostomy for relief of	197
Stone. Bilharzia Infection and	150
Stone. Encysted, in the Bladder in Women	253
Stone. Formation of a, after cauterization of Bladder with Silver Nitrate	224
Stone. Pyelotomy for	256, 364
Stones in lower urinary tract	566
Stricture—see Electrolysis.	
Stricture, Incontinence due to	363
Stricture of the Male Urethra	115
Stricture. Treatment of, Fibrolysin in	95
Stricture. The treatment of	100
Strictures, Inflammatory of Prostatic Urethra	528
Strictures of the Urethra, Congenital	409
Strictures. The treatment of urethral	144, 209
Suprapubic Drainage. Modification of the methods of	361
Suprarenal Growths. Study of	216
Surgeon. Some strictures upon the General—editorial	145
Syphilide. Extensive Dorsal	365
Syphilides. Hypertrophic Scars following acneiform	153
Syphilides. Ulcerated, Ung. Crede in	268
Syphilis—see Chancres, see Gummas.	
Syphilis. An attempt to abort, during the primary stage	455
Syphilis. Arsacetin in	258
Syphilis. Can it be aborted?	572
Syphilis. Cutaneous	101
Syphilis. Dungern's reaction in	580
Syphilis. Ehrlich-Hata remedy	503
Syphilis. Ehrlich-Hata remedy, technique of preparing solutions of	573
Syphilis. Hemolytic Jaundice in	365
Syphilis. Intramuscular Injections in	38
Syphilis. Mergal in	543
Syphilis. Porges reaction in	579
Syphilis. Review of Ehrlich Remedy for	539
Syphilis. Sero-Diagnosis of, Noguchi's System of	44
Syphilis. Tertiary, of the Urethra	41
Syphilis. Treatment of Abortive	159

INDEX

Syphilis. Treatment of, by means of inhalations	156
Syphilis. Treatment of, by the new local abortive method	353
Syphilis, Treatment of, Cocodylate of Mercury in the	286
Syphilis, Treatment of, in the Secondary Stage	458
Syphilis, Treatment of, with Quinine	417
Syphilitic Nephritis	34
Syphilitic Toxic Infection. Acute	456
Testes, Tuberculosis of, in old men	34
Testicle, Tuberculous, in a child of six months	44
Testis, undescended, Value of the	99
Trigone, Vesical. Observations on the	408
Tuberculin in tuberculosis of urinary tract	584
Tuberculosis of Testes in old men	34
Tuberculosis of the male genital organs. Radical operation for	62
Tuberculosis, Renal	421, 60
Tuberculosis, Renal, ascending	459
Tuberculosis, Renal, Prognosis and Treatment	39
Tuberculosis, Transmission of to Bladder	525
Tuberculous Testicle in a child aged six months	44
Tubes, Pus, in the Male	266
Tumor of the Bladder	403
Two-Stage Principle in Genito-Urinary and in General Surgery—editorial	92
Urease, tests for, in clinical diagnosis	569
Uremia. Chronic, Permanent and Spasmodic Paraplegia in	450
Ureter and Blood-vessels, absence of	325
Ureter, Cyst-like Dilatation of accessory	540
Ureter, Implantation of the, into Bladder	224
Ureter, Implantation of the, into rectum	566
Ureter, Implantation of the, into Bladder	399
Ureter, Injury to the	399
Ureter, Occlusion of the, Case of Hydronephrosis due to	357
Ureter, Operations on the Lower Portion of the	47
Ureter, Perforation of Left, by a Calculus	449
Ureter, Transplantation of Right, into Appendix	230
Ureter, Vesico-Vaginal fistulæ involving the	492
Ureteral Calculi	210
Ureteral Calculi Multiple in a child	358
Ureteral Catheter, Endovesical Separation of Urines versus	532
Ureteral Catheter versus the Separator	531
Ureteral Catheterization and the use of the Separators	529
Ureteral Catheterization in Infants and Children	535
Ureters, Calculi in the	407
Ureters, Isolated, Experiments with	151
Ureters, Meatoscopy of the	261
Urethra, Calcified Fibromyoma of the	222
Urethra, Foreign body in the	95
Urethra, Hemorrhages from the Male	348
Urethra, Hyperemia in the	96
Urethra, Hyperemic Treatment of, by hot sounds	37
Urethra, Posterior, The Pathology of	213
Urethra, Prostatic, Transverse Rupture of	99
Urethra, Rupture of the	270
Urethra, Stricture of the male	115
Urethra, Strictures, Congenital, of the	409

INDEX

Urethra, Tertiary Syphilis of the	41
Urethral and Prostatic Infections. Report of Bacterin Therapy	341
Urethral Calculi	13
Urethral Instruments, French and Spanish names for—editorial	32
Urethral Irrigator, with massage of the canal	531
Urethral Lubricants. Local anesthesia by	520
Urethral Processes, Chronic. The therapy of certain	102
Urethral Strictures. The treatment of	209
Urethral Strictures. The treatment of—editorial	144
Urethritis, Non-Gonococcal	492
Urethritis, Shreds in the Urine, without	412
Urethroscope, Advantages of the	358
Urethroscope, Technique of Galvano-Caustic work through the Irrigation	217
Urethroscopy by means of Irrigation Instruments	36
Urethroscopy Irrigation	415
Urethrotomy. External	161
Urethrotomy. External versus Internal—editorial	146
Urethrotomy. Post-operative Treatment of	46
Urinary calculi in Finland	567
Urinary Disturbances resulting from violent emotion	496
Urinary Fistula. Persistence of	137
Urinary Obstruction. Diseases of Verumontanum as a cause of	283
Urinary Organs. Operations upon the, Statistics of	148
Urinary Surgery, Injections of Bismuth Paste in	405
Urinary Tract. Ascending Infection of the	154
Urinary Tract. Female, Ascending Gonococcus Infection in the	225
Urinary Tract. Infections of the, due to Bacillus Coli	267
Urinary Tract. Ionization of Infections of the	526
Urine. Camidge Reaction in the	46
Urine. Retention of, Case of	70
Urine. Retention of, traumatic and post-operative	556
Urine. Shreds in the, without Urethritis	412
Urine. Suppression of, simulating Calculous Anuria	42
Urologic Brevities	56, 113, 169, 281
Urological Atrocities	472
Urologist. The General Practitioner as a	31
Urology, Dawn of	279
Urology, Method in	360
Urorythmography	359
Vas, Anastomosis of	345
Vas Deferens. Transplantation of, into the Urethra	453
Verumontanum—see Colliculus Seminalis.	
Verumontanum, Disease of the, as a cause of Urinary Obstruction	283
Vesical Calculus, Encysted, with Pedicle	267
Vesical Calculus, Removed by repeated crushing	68
Vesical Hemorrhage, treatment of	291
Vesical Papilloma. Epithelioma of abdominal Parietis, occurring after removal of	261
Vesical Papillomas. Origin and Transformation of	454
Vesical Trigone. Observations on the	408
Vesical Tumor in Bilharzia Infection	270
Vesico-Vaginal Fistulæ involving the Ureter	492
Wassermann Reaction	539
Wassermann Reaction in Prostitutes	100

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WILLIAM J. ROBINSON, M. D., Editor.

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No. 1

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

A LARGE IODOFORM-GAUZE TAMPON IN THE BLADDER FOR NEARLY TEN MONTHS.

By VICTOR G. VECKI, M. D., San Francisco.

Reported at the Meeting of the San Francisco Urological Society, Dec. 2, 1909.

J. H., a German, sixty-seven years old, of powerful build, over six feet tall, presented himself at my office September 15, 1909. He was in great distress, but declared at once, that, though he suffered atrociously, he would submit to no operation. He only wished to be relieved of his constant pains, which made his life, and mainly his nights, a veritable hell. The patient was feverish (100.6), his talk rambling, disconnected, and it was with some effort that the following history was elicited:

He had for the last eight years more or less difficulty in emptying his bladder, thinks that he was not able to empty it completely for more than four years, and was consequently disturbed in his night rest. Sometime in the summer of 1908 he attended a wedding, drank more white wine than he was used to, subsequently could not urinate at all, and had to be catheterized. A few months later, this happened again without any apparent provocation, the catheterizing this time causing a considerable hemorrhage. The patient was then treated at a hospital and after three weeks returned home as improved. This improvement did not last, and finally, on December 9 of the same year, he submitted to a prostatectomy, which was urged upon him by all the physicians he consulted.

The operation was performed successfully, but while the patient did not die, his real pains and suffering began from that time. The urine became fetid, escaping constantly

through a suprapubic fistula, the bladder, absolutely intolerant, had to be emptied every hour day and night, and the pain at the end of the micturition was, as he said, "terrible."

This history spoke for a stone in the bladder, and I only could not understand why all these symptoms should date immediately from the operation.

The patient emptied about 80 grammes of an extremely ill-smelling urine, which, I must confess, I did not investigate any further. A catheter French No. 26 entered the bladder without any difficulty, the bladder was thoroughly washed with an asterol (Mercur. Ammonium comp.) solution, the suprapubic fistula occluded by introducing the beak of a sound French No. 13, about 150 grammes of the asterol solution left in the bladder, and a cystoscope introduced. My photographing cystoscope was not in working order, and in the hands of its maker, which was unfortunate, because the picture I saw was most unusual: a foreign body that looked like the head of a brain coral (*Moéandrina*). The beak of the cystoscope, when entering, gave the characteristic stone-sound, but when touching the surface of the coral-head-like formation gave no sound and no feeling of resistance. The patient began to be impatient, and the distending solution was oozing beside the occluding sound through the suprapubic fistula.

The patient was told that a cystotomy was imperative, and as he refused to consider it, was ordered to take one gramme of helmitol every four hours. He returned September 15, still suffering with the same pains, but the urine less muddy and less ill-smelling.

On September 21 he entered the hospital, and, as the rest, the helmitol, the regular irrigations of the bladder, and careful attention to the emptying of the bowels had only a slight influence upon the constant pains, he consented to be operated upon.

Suprapubic cystotomy was performed September 25. While the entering into a bladder that can be properly distended is accompanied by no difficulty whatever, it is not always easy to make a proper opening into a contracted bladder, which is besides embedded into, and firmly held, by scar-tissue. For such cases I would suggest the introducing of a

cystoscope, the light of which enables one to proceed safely and with due conservatism.

When this patient's bladder was opened wide enough to admit a finger it was at once clear that the foreign body, soft at its upper surface, and stone-hard at its lower one, was a piece of gauze left over from the former operation. This was extracted by a forceps introduced and applied under the guidance of the finger in the bladder. Following Freyer's method, a large drainage tube was secured into the opening.



A. Solid stone part. B. Part that remained almost soft. C. Stone incrustated part.

Photographic reproduction of Iodoform gauze tampon extracted from bladder after a sojourn of nearly ten months. Photo by Dr. Ferdinand Freytag.

The patient made an uneventful recovery, the temperature, which before the operation fluctuated between 99.4 and 103.1 was, and remained normal forty-eight hours after the removal of the tampon, the urine gradually cleared, its neutral reaction became acid, the blood and pus corpuscles disappeared, the suprapubic fistula closed.

The surgeon who performed the prostatectomy told me that at that time there was considerable hemorrhage which could only be controlled by tamponment of the bladder with iodoform gauze. Unfortunately one of the tampons remained in the bladder after the incision wound had rapidly but incompletely closed.

Foreign bodies are frequently found in the bladder, and, first causing an ammonical cystitis, are generally the nucleus for a xenogenic concrement formation. In the literature there is no case of gauze left in the bladder to be found. Erlach reported a case where he found gauze tampons which had, by erosion, wandered from the abdominal cavity into the bladder after laparotomy. The foreign bodies are mostly fragments of catheters, needles, ligatures, filiform bougies, fragments of instruments, as lithotriptors, dilators, glass-tubes, pipes, goose-quills and other tube-like things that may be used by unskilled people to relieve retention; wood-sticks, bone-splints, bullets, vaselin-masses, bunches of hair, etc., not to consider objects introduced by morbid persons for purposes of masturbation. In Egypt, where concrements in the bladder are very frequent, the *Distoma haematobium* is frequently found as the nucleus.

In the precystoscopic times it was taught that one of the most characteristic symptoms caused by a foreign body in the bladder is the excruciating pain at the end of micturition, when the contracting muscles bring the sharp edges of the foreign substance into contact with the hyperalgetic mucosa vesicalis. There could be only the question of a differential diagnosis between a sharp-edged stone and a sharp-edged foreign body. Nowadays we need not calculate nor guess, the cystoscope answers definitely any intelligently asked question.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

WHY IS FARADIC TREATMENT SUPERIOR TO MASSAGE IN PROSTATITIS?

By DR. MORISZ POROSZ, Budapesth, Hungary.

THURE BRANDT, encouraged by his success with massage in uterine inflammations, suggested the use of massage of the prostate with the finger. This method came rapidly into vogue as the result of the work of Ebermann, Schliffka, and others.

Feleki found that massage of the prostate with the finger was disagreeable both for the physician and the patient, and invented his instrument for prostatic massage. Other instruments were later devised for the same purpose by Pezzoli, and others. Soon, however, there arose just protests against the

use of these instruments on the ground that there was no way of guiding the massage by palpation, so that the procedure was done blindly, haphazard. Of late it has come to be a recognized principle in urology that prostatic massage should be practised only with the aid of the finger.

The electrical treatment of uterine disorders, which had been practised by a number of authors led me to attempt electrification of the prostate for the first time in 1894, on the ground that the prostate, like the uterus, is an organ rich in muscular fibres.

At the International Medical Congress of 1897, held at Moscow, I presented a paper on this subject, and since that time the electric treatment of the prostate has become a recognized factor in our therapeutic methods. While everybody knows of this method, it has not been as widely adopted as it deserves to be, and it is with the purpose of converting the adherents of prostatic massage that I present this paper.

The high scientific character of my audience absolves me from the necessity of entering into a long description of prostatitis in its various forms. I shall confine myself, therefore, to the discussion of the method of electrification of the prostate.

The object of electrification of the prostate is to promote the action of the muscular fibres of this organ. For this purpose the faradic current alone can be of use. Inasmuch as the muscular fibres also squeeze out the secretion of the organ, it seems plausible that the faradic current also assists in emptying the gland. This expression of the contents of the prostate appears desirable when there is an inflammation of the parenchyma of the organ, especially of the mucosa lining the acini and ducts of the gland.

The removal of inflammatory products is important because it prevents the further spread of the affection, and counteracts the occlusions of the excretory canals. When these are occluded there is not only an interference with the flow of the glandular secretion, but also a certain amount of retention. This retention may lead to a great distension and to a bursting of some of the acini, and consequently an effusion of the accumulated exudate into the peri-acinous spaces, leading thus

to a phlegmonous abscess formation. The further course of such cases may be so grave that life itself may be threatened.

A natural, I might say a physiological emptying of the prostate, can be secured with the aid of the faradic current. Inasmuch as there is no submucosa beneath the mucous lining of the prostatic acini, and inasmuch as the muscular fibres are in close contact with the inner layers of the mucosa, the inflammation is apt to involve these muscular fibres. That this is not merely a theory, is shown by the occurrence of the functional disturbances which are met with in connection with prostatic inflammations. In such cases the patient complains of frequency of urination and has an abnormally rapid ejaculation during coitus. Nocturnal pollutions and even spermatorrhoea may also be present. Prostatorrhoea may also be mentioned.

The electrodes which I employ can be carried over the entire prostate, including its lateral lobes, and the preurethral portion. With this method I am also able to express the "uterus masculinus," a nest of gonorrhœal infection to which all too little attention has been given.

Scharff says, very wisely, that faradization is nothing but a microscopic massage of the gland. We do not massage the prostate with this method, but with it we massage the single muscle-fibres of the organ. In my opinion this muscular massage is far more important than the emptying of the exudate, and of the germs contained in the prostatic spaces. The infecting agents, the gonococci perish spontaneously in the course of time. In addition to the evidence brought out by the investigations of von Notthaft, this is proved sufficiently by the fact that many men with incompletely cured, or even untreated gonorrhœal infections of the prostate, marry without giving their wives gonorrhœa. If it were not for the fact that gonorrhœal infection spontaneously disappears in the course of time, every human being would have been infected with it, in the course of centuries.

When the prostatic pus has lost its infectious character it is no longer dangerous when transferred to another individual. Then the prostatitis and the presence of pus in the

prostate have lost their serious significance for the patient himself. It is nothing new to find that in persons who have never had gonorrheal infection, the prostate continues to secrete pus for years. On the other hand there are men who, after a gonorrheal infection, have had pus in the prostate for years without any interference with their bodily health, their sexual or other functions. In these cases the pus in the prostate is a theoretical abnormality which is of no practical significance.

On the other hand, whenever the prostatic musculature is affected, when the fibres do not act properly, there appear disturbances of function, even without any infection of the prostate. These disturbances appear in connection with those acts which require the coöperation of the prostatic muscles. Thus, during urination, which becomes more frequent; during ejaculation, which becomes premature; polutions, spermatorrhea, and other disturbances, or even impotence, may also appear. These act unfavorably upon the nervous system, and lead eventually to a more or less pronounced type of neurasthenia. The inflamed musculature is not active. The nutrition of the inactive muscle fibres is poor, and they gradually atrophy. When we begin to exercise these muscles, we improve their metabolism, and they do not become atrophied. Consequently the faradic current not only enables us to get rid of the disease in the affected muscles, but it also prevents the atrophy of the muscles which have not been affected, but which are threatened with atrophy, owing to their inactivity.

By putting muscular fibres into action we not only improve metabolism and promote circulation, but also assist in the nutrition and circulation of the neighboring parts.

This point is of theoretical as well as practical importance. Just as faradization promotes the circulation of venous blood in the larger muscles, by producing a compression of the veins at periodic intervals, so also does the musculature of the prostate, when brought into action by the faradic current, promote the flow of venous blood from the veins of the organ, which derive their supply from the posterior urethra. That this is so, I have been able to prove innumerable times by

clinical observation. Following faradization the desire to pass urine becomes less and less constant, and finally disappears. The current produces a "decongestion" of the posterior urethra.

It was this particular property of the faradic current which influenced me to try it in acute prostatitis. Heretofore acute prostatitis has been regarded as a *noli me tangere*. Not only has it been the custom to avoid touching or massaging the enlarged prostate, which may reach the size of a fist, but it is even taught that injections into the posterior urethra should be avoided in this condition.

I have been unable to understand why the acutely inflamed prostate has been left to its fate, when we know the dire consequences of acute prostatitis. For these reasons I have been impelled to try the faradic current on acute prostatitis, and have obtained strikingly successful results. A steady relief from the painful symptoms was obtained, increasing from day to day, and the prostatic swelling correspondingly diminished in size. Very often after eight days the acute oedema completely vanished, and the prostate assumed its normal proportions.

There is often a marked difference between the urine voided before and after the faradization. The urine after faradization often is cloudy and in it are found the characteristic comma-like shreds of prostatitis. These shreds consist of epithelia, pus cells, and mucus.

If the prostatic inflammation has not yet reached the chronic stage, the urine after faradization is cloudy. The prostate which has been treated in the manner described becomes free from pus in the course of time, and its muscular functions remain intact. But even if there are a few pus cells remaining in the secretion, the functional condition of the gland is restored to normal by this method of treatment. We may therefore regard the cure as complete. It is a matter of individual opinion, any way, whether we consider the round cells found in the secretion as lymphocytes, or as pus cells, or whether we look upon the leucocytes as round cells. Lymphocytes, as we know, occur more or less frequently in the normal prostatic secretion.

The theoretical considerations which have been above detailed are in agreement with my clinical experience with this method of treatment, which now covers a period of over fifteen years.

Let us contrast now prostatic massage and its effects with these conditions. Theoretically, massage secures the passive expression of the purulent exudate. If we examine the secretion pressed out by massage, we at once find the purulent elements of the prostatic secretion. When we consider, however, that the prostatic substance is made up of a complicated ramification of channels and acini, which branch off from each other like the branches of a shrub, which are massed together in the form of a globular, dense mass, the question at once arises, whether it is possible to follow up each ramification to its end, and to empty it, by the use of the finger pressing against the outlet of the canal, the main branch into which the ramifications empty. Unquestionably this is quite impossible.

The point is that no matter in what direction we massage a cavity which forms a part of the tree to which the prostatic structures may be likened, we must needs massage back into another cavity directed in an opposite way, the very secretion which we are trying to remove. It is in this manner that we can create the condition described at the Paris Congress of Urology by Janet and Hogge,—namely, that the massage aggravates the condition and spreads the infection where it has not existed previously, or converts a chronic case into an acute. By the bursting of retention cysts, there may even develop an abscess of the organ. Massage simply increases the amount of the secretion of the prostate, just as is the case in the mammary glands. A great analogy of structure exists, by the way, between these two sexual glands. The expressed contents of the prostate increases in quantity after a prolonged treatment with massage.

Janet and Hogge expressed the fear that massage may also give rise to painful compression of the prostatic ducts and muscles. This is not to be doubted, as it is impossible to regulate accurately the exact pressure of the finger upon the prostate. We know from our experience with other forms of

massage that excessive pressure upon muscle fibres not only does not improve them, but actually weakens them. By compressing the muscles and the nerves, massage furthermore may also be painful. I have had abundant proof of the fact that this is not merely a theoretical consideration. Patients who had been treated with massage have consulted me and told me that frequently they had pains after the treatment, and that they suffered from disturbances of micturition for some time after each seance. A diminution in the sexual potency of these men was also noted after this treatment.

While the method of massage may succeed in freeing the prostate from pus, the physicians who treated these cases asked the patients to sacrifice too much for the sake of a pus-free prostate,—for the patients have lost part of their sexual potency. I do not claim that this is the case in all instances. A well-trained hand can feel the amount of resistance of the organ, and can determine the amount of pressure allowable. But even then, surprises occur.

We are told not to massage an acute prostatitis, to be very cautious in massaging a subacute case, and to use very gentle pressure at first in chronic cases. This is very well said, but we also know that we can no more know the degree of inflammation than we can feel the exact degree of pressure exercised by the finger. Frequently we can determine neither of these factors accurately.

In order to become sufficiently cautious in massaging the prostate one must needs have some disagreeable experiences. Among these there is one which we are bound to get, namely, that a chronic prostatitis can become acute. Furthermore we must have seen epididymitis, cystitis, and chills after prostatic massage.

But even if these experiences were not a matter of common observation, there would be still another objection to the efficacy of prostatic massage: It is a physical impossibility to empty the prostatic ducts into the posterior urethra because the prostatic ducts open into the urethra in the shape of a semi-circle, the canals being bent in such a way as to prevent us from emptying them by pressing them against the colliculus seminalis.

No matter how we massage the prostate, therefore, whether we use a downward stroke, as does Frisch, or a lateral stroke, as does Wossidlo, or a stroke from side to side, towards the middle line, as does Oberlaender, the canals are so situated that we drive the contents of some of them backwards.

All this is, it is true, only theory. What does experience say, however?

A large proportion of cases of prostatitis thus treated are cured. There is no question about this, as this is asserted by men of great learning and experience. All of them, however, state that in some of the cases the result is not complete. Frisch, who is one of the most prominent writers on prostatitis, states frankly that "there are cases in which prostatic massage avails nothing." In other cases it becomes necessary to interpret the local treatment, after having carried it on for some time. Some other method must be temporarily employed. When the nervous symptoms come to the fore, Frisch agrees with Fürbringer and Pommer that the local treatment, the injuriousness of which becomes soon apparent, should be replaced by the general treatment.

I shall avoid drowning the thread of my discourse in a sea of literary references. Doubtless every urologist has had experience with prostatic massage and with electric treatment of the prostate. The latter has been considered by Frank, Rothschild, Vertun, Dommer, Scharf, Hogge, Jauch, etc. I shall mention only the following from my own experience.

I treat the prostate in all cases by means of the faradic current. In the fifteen years of my practice I have never seen any case in which this treatment would be contraindicated. I have not seen any patient in whom the treatment might have done harm, either on account of the condition of the prostate, or on account of the general condition of the patient. Among my cases there have been many of severe neurasthenia.

There was never any complication after faradization of the prostate. The patients improved, more or less rapidly, according to the degree of prostatitis from which they were suffering.

But I shall go even further. Inasmuch as every posterior urethritis is accompanied by a prostatitis, I begin faradization even at the onset of posterior urethritis. It may be pure coincidence, but I rarely see an epididymitis among my cases, since I have adopted this method of procedure. Inasmuch as I usually find a purulent prostatitis in cases of cystitis, I also use this method in this class of patients. The results which I have obtained have been so favorable, that only in exceptional cases were irrigations of the bladder necessary. Naturally, the faradization must be used in connection with treatment of the posterior urethra. I employ injections of nitric acid with the Guyon syringe.

The results which I have obtained encouraged me to present my conclusions before this Association, and to recommend this method to your consideration.

If I may be allowed to do so, I shall say a few words regarding the technique of my method.

The purpose of faradization is an induction of periodic contractions of the muscle fibres. The use of a constant faradic current of equal intensity is therefore useless. For this reason we must employ an interrupted current. The current should be applied for one or two seconds, then there should be a pause of about one or two seconds, in such manner that about twenty or thirty contractions of the musculature be induced within two minutes. The current should be increased at each treatment, from a weak to a stronger one, so that at the beginning of the treatment the first contractions are induced by a weak current, while the last contractions are the result of stronger stimuli. During the administration of the current I am in the habit of moving the electrode from one place to another in contact with the prostate, or a new place is sought during the pauses, thus covering the entire gland.

The applications can be made with the aid of the rectal electrode devised by me, which can be introduced easily, owing to its thin shape. The electrode is well isolated, and has a metallic surface six cm. in length, which is in contact with the entire prostate. The patient should lie on his back, if desired, but I am in the habit of using it with the patient stand-

ing well bent forward, with his hands resting on the back of a chair. Several years ago I also devised a combined appliance for using hot water in the rectum together with the electric current. In chronic prostatitis of the rebellious type I find it useful to have water at about fifty degrees centigrade flow into this tube during the application of the electric current.

The electric treatment is so pleasant and refreshing that it can be given daily for four or five weeks. After this the condition is so much improved that I use it every other day or every third day or even every fifth day. This is continued until the urine voided after the electrization no longer shows the presence of pus.

Then I make several control examinations,—once after coitus, another time before an intended coitus, etc. No other treatment, no other medication is used. I do not have much faith in suppositories of ichthyol, or of potassium iodide, or of gray ointment. In painful micturition suppositories of morphine and belladonna are efficient and prompt. I do not use any other drugs.

If the instrument be kept properly clean its use is not connected with any dangers. Care must be taken to apply the wet flat electrode over the os pubis, or the fibrous insertions of the abdominal muscles, not over the muscles themselves, as this would induce cramp-like contractions of the abdominal wall.

I can recommend this method to the members of this Association, because of its harmlessness and efficiency.

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SOME CASES OF URETHRAL CALCULI

By JAMES R. HAYDEN, M. D., of New York.

MY object in reporting the following cases of "urethral calculi" or concretions, is with the hope that they may shed some additional light on the etiology of these rather infrequent foreign bodies.

CASE 1. Thos. McB., 38. Admitted to Bellevue Hospital August 27, 1908 for painful and difficult urination.

Patient has never had urethritis. Eight months ago had a very severe attack of left renal colic, which has recurred at in-

tervals. Two and a half months ago had last attack of colic, during which he felt something coming down from the left kidney to the bladder, and one week later and without pain he passed a small stone by the urethra: this was lost.

Examination. The urine is clear and contains flakes. No stricture detected. A bougie à boule touches a rough body in the bulbous portion of the canal, which can also be felt on palpation.

Treatment. External urethrotomy was performed in the usual manner and a 15 grain stone (see Plate I, Fig 1), removed from the bulb. The bladder was drained with a large soft rubber perineal tube for 24 hours, the patient making a prompt recovery.

This stone probably formed in the left kidney and on its outward course became engaged in the bulbous urethra where it remained until its removal.

An X-Ray of the urinary tract was negative.

CASE 2. Thos. F., 45. Admitted to Bellevue Hospital December 14, 1908, for frequent, painful and difficult urination.

Patient had urethritis thirty years ago. Has had frequent attacks of complete urinary retention, relieved by catheter, and at present his stricture is being dilated with bougies. No history of renal colic.

Examination. The urine is very turbid from pus, and neutral in reaction. Four inches from the meatus is a stricture admitting a No. 24 F. endoscopic tube, projecting into which can be seen the end of a conical stone, which can be readily felt from without.

Treatment. External urethrotomy having been performed and the stricture cut, a 49 grain stone (see Fig. 2), was removed, and the bladder drained for 24 hours. Recovery prompt.

This stone probably formed behind the stricture, where it increased in size.

CASE 3. H. H., 45. Admitted to Bellevue Hospital December 11, 1908, for painful and difficult urination. No history of renal colic. Urethritis twenty-seven years ago, which patient says has never been cured. Eighteen, and again fifteen years ago internal and external urethrotomy were performed for the relief of strictures. Five years ago litholapaxy was performed *without an anæsthetic* and since that time patient has had pain-

ful, frequent and difficult urination, the stream stopping suddenly and temporarily at times.

Examination. The urine is cloudy and contains tissue elements. A No. 22 F. endoscope shows a stone in the bulbous portion of the canal, beyond which is a tight stricture.

Treatment. A stone weighing 26 grains (see Fig. 3), was removed through an external urethrotomy incision, the stricture cut and the bladder drained for 24 hours. Recovery satisfactory.

In this case a fragment of stone was left in the bladder after litholapaxy and passing into the urethra lodged behind the stricture.

CASE 4. Ed. O'C., 63. Admitted to Bellevue Hospital November 3, 1907, for very difficult and painful urination.

Patient has never had renal colic. Fifty years ago he had a very severe attack of urethritis, which lasted for two years. Eighteen years ago had acute retention of urine which was relieved by suprapubic aspiration. Two years ago began to have severe pain in the bladder, which was increased by motion, and at times has had complete stoppage of the stream.

Examination. The urine is very foul, alkaline and ammoniacal. Two inches from the meatus is a stricture, admitting a No. 14 F. bougie à boule, and a second filiform stricture at the bulbomembranous junction, behind which the filiform grates upon a rough body, which can be palpated from the perineum.

Treatment. A stone weighing 11 grains (see Fig. 4), was removed through an external urethrotomy wound, the strictures cut, and the bladder drained for 48 hours. Recovery was uneventful.

In this instance the stone had its origin behind the stricture and remained there unnoticed until patient's admission to hospital.

CASE 5. W. G. C., 63. Admitted to Bellevue Hospital December 30, 1904, for retention of urine.

Patient gives no history of urethritis, or renal colic. Six weeks before admission patient began to have frequent, painful and difficult urination, and for the last three days all of the urine has been drawn by catheter.

Examination. The bladder is markedly distended (see Fig. 5). Temperature 101° F. Pulse and respiration normal. A bougie à boule touches a hard body just beyond the navicular

fossa and on palpation four hard bodies could be felt in the pendulous urethra.

Treatment. The urethra was anæsthetized as completely as possible with 2% alpyin solution, and warm sterile oil injected, after which the four stones (see Fig. 6), were removed by means of a urethral scoop and manipulations from without, the distal portion of the canal being compressed to prevent the calculi from slipping back. A full size catheter was then passed to the bladder from which was drawn 53 ounces of foul urine. The bladder was irrigated with boric acid solution, one pint of which was left in to prevent collapse of the distended and congested walls. All of the urine was drawn by catheter until the urethral abrasions healed, the patient taking plenty of bland water and urotropin and the canal being irrigated with mild astringent solutions. Recovery was uneventful. In this case the origin of the calculi cannot be positively stated. The X-Ray was negative.

CASE VI. A. V., 50. Admitted to Bellevue Hospital February 4, 1909, for retention of urine.

No history of urethritis. Has had several attacks of renal colic during the last two years. Twenty-four hours before admission patient had a very severe attack of left renal colic, which was followed by agonizing pain in the perineum and very difficult urination which resulted in complete retention a few hours before his admission.

Examination. The bladder is moderately distended. A 25 F. sound detects a rough body in the prostatic urethra, where it was too firmly held to be pushed back into the bladder.

Treatment. Through an external urethrotomy incision two stones weighing 17 grains (see Fig. 7), were removed from the prostatic urethra with great difficulty, as they were firmly grasped by the walls of the canal. The bladder was drained in the usual manner. Recovery was prompt and satisfactory. X-Ray plates were negative.

Urethral forceps were not employed in any of the above cases, as in my experience calculi and rough foreign bodies extracted from the deeper portions of the urethra in this manner are liable to lacerate the urethral walls to a considerable degree,



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.

whereas a simple external urethrotomy incision allows inspection of the foreign body, plenty of room for its delivery, and being longitudinal, heals promptly without stricture formation, provided the wound is dressed daily by the surgeon himself, and the urine rendered sweet and copious by plenty of water and urotropin.

If the calculus is situated in the *pendulous* urethra, it can then be removed with forceps or scoop, aided by manipulations from without, or if the concretion is small, the forceps can be worked through an endoscopic tube, the operative field being brilliantly illuminated.

The conclusions to be drawn from the above cited cases are:

First. The importance of freeing the bladder of all fragments of stone after cutting or crushing operations, to prove which a cystoscopic examination should be made after litholapaxy, and every portion of the bladder mucous membrane examined with the bare finger after cystotomy.

Second. Always examine the canal for concretions behind strictures, but especially in old and tight ones, and those complicated by fistulous tracts.

Third. During and after an attack of renal colic all of the urine should be saved and examined for sand or concretions, and if neither are found, the urinary organs should be subjected to the "X-Ray" or instrumental examination.

Fourth. Litholapaxy, especially for large stones, can be performed in a more thorough manner when the patient has general anæsthesia, and the surgeon does not hurry to spare his patient the pain of a proper post-operative examination.

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OBSTRUCTIVE CALCULOUS ANURIA

By F. S. WATSON, M. D., Boston.

IN a recent number of the *American Journal of Physiology*, a physiologist makes the statement that "Critical examination of the literature shows no conclusive evidence as to how the kidney produces urine from the blood." The clinician may appropriately supplement this confession of defective knowledge by adding that study of anuria fails to supply conclusive explan-

ation as to the manner in which suppression of the urinary secretion is brought about.

It is not unprofitable to summarize the factors of both physiological and pathological problems with regard to which there is general agreement and which may be regarded as established. Under this heading we may place the following physiological ones:

1. A living membrane composed of the walls of the glomeruli and parts of the urinary tubules intervenes between the blood and the urine. The urine is formed by the passage through this intervening wall, of water and molecules of certain substances held in solution in the blood.

2. It is highly probable that some, at any rate, of these molecules are chemically changed by the secretory activity of the epithelial cells of parts of the convoluted tubules and of the ascending arms of the loops of Hënle.

3. The channels by which the urine escapes from the kidney must be free and unobstructed in order to have the urinary secretion normally produced.

4. The formation of the urinary secretion is influenced by the pressure, rate of circulation, molecular concentration, volume, and viscosity of the blood in the kidney.

When we go beyond these fundamental data and undertake the study of the more remote elements by which each of the above named factors is influenced and endeavor to interpret them, we enter a field of fascinating, but largely speculative nature. Of the obstructive or excretory form of anuria, which is that one with which this communication is concerned, the following things may be stated:

1. When the ureter is suddenly closed, as it is in cases of calculous anuria, the urinary secretion is very quickly arrested, a small amount only being formed and accumulated above the point of impaction of the calculus.

2. The kidney is enlarged owing to congestion and œdema of the organ which follow upon the closure of the ureter and increased intra-renal pressure thereby produced, and not because of being distended by accumulation of urine within it. The congestion and œdema continue for variable lengths of time and then subside.

3. Progressive destructive changes begin in the secretory elements of the kidney soon after the establishment of the anuria and, unless the obstacle be removed, continue, ultimately destroying the entire renal substance by a gradual and aseptic process of atrophy, if the kidney is not infected, more rapidly, by suppuration, if it is infected.

4. In the majority of cases of unilateral calculous anuria the unobstructed kidney is either congenitally absent, extensively diseased, or wholly destroyed. In a minority of the cases, the unobstructed kidney is but moderately damaged, and in a few, some observers believe it to be normal. In the latter instances, the suppression of the urinary function of the unobstructed kidney is explained by assuming it to have been produced by the influence of the so-called reno-renal reflex inhibition originating in the conditions produced by the obstruction of its fellow organ of the other side.

The points connected with obstructive calculous anuria, of which I wish to speak are the following:

1. The reno-renal reflex inhibition of the unobstructed kidney.

2. Some of the difficulties of diagnosis.

3. Certain features of treatment, viz.; the value of the ureteral catheter and injection through it of boric solution, or oil as a therapeutic measure. The value of sub-cutaneous saccharine solutions in reestablishing the urinary secretion. The same with regard to the transfusion of normal saline solution. The question as to what, if any, circumstances make the direct removal of the obstruction from the ureter as a primary measure preferable to nephrotomy. The kidney which should be first be operated upon in cases in which the location of the calculus is not definitely known. The desirability of performing simultaneous bilateral nephrotomy or nephro-lithotomy in some cases, and which these cases are.

1. *The reno-renal reflex inhibition.* No one denies that in the majority of cases of unilateral calculous anuria, the opposite or unobstructed kidney, is, as has been said, either absent, extensively damaged, or wholly destroyed. There are some who assert that these conditions are invariably present on the unob-

structed side. The contrary belief is held by other observers and I am in accord with them.

The evidence offered in support of the former of these contentions is that no case of unilateral calculous anuria has been reported in which a histological post-mortem examination of the unobstructed kidney has shown it to be structurally normal, or but slightly involved in pathological changes.

The evidence furnished by those who maintain the contrary view is that of a number of clinical observations in which normal urine has been drawn by ureteral catheter from the unobstructed kidney after the cessation of the anuria; and again that of having normal urine passed by the remaining kidney after a nephrectomy, when anuria, which followed the operation, ceased, as in three cases reported by Rovsing in which he left in each instance a clamp upon the pedicle of the kidney he removed, and in all of which anuria followed the operation and lasted two or three days. Upon the removal of the clamp from the pedicle, the kidney that remained on the other side at once resumed its urinary function, secreting in each instance, as has been said, normal urine. Another confirmation of the occurrence of reno-renal reflex inhibition of the normal and unobstructed kidney is furnished by the work of Götzl, who in three out of 12 experiments with dogs, produced suppression of urine of one normal kidney by clamping the ureter of the other one. In one instance he produced an alternating suppression and re-establishment of the urinary secretion in correspondence with the clamping and unclamping of the ureter. Those who maintain the belief in the occurrence of the reno-renal reflex inhibition produced by sudden obstruction of the opposite ureter, assume that if the unobstructed organ secretes normal urine after anuria ceases, as in the cases cited, the kidney secreting it is structurally normal, or at most involved in but temporary and unimportant pathological processes; and this inference would seem to be justified until it has been demonstrated that a kidney which is extensively diseased is capable of producing perfectly normal urine, which, so far as I am aware, has not as yet been done.

The point to which I wish to call attention is that the *exact nature* of the inhibitory influence that produces the suppression

of the secretion of an unobstructed kidney in cases of calculous anuria, is of less importance to the surgeon at the present time, and of less benefit to the patient than it is to recognize, what I believe to be the fact, namely that there are a good many more cases than is generally appreciated in which the suppression of the secretion of the unobstructed kidney takes place when that organ has a most important amount of still capable substance left in it, and that whatever be the exact nature of the inhibition, it is at any rate, of such kind that the laying open of such a kidney, may make the difference between the patient's living or dying.

Before leaving this part of the subject there are three cases to which I will refer, that are suggestive and interesting and are appropriate to the discussion of the reno-renal reflex. For the opportunity to report the first of these I am indebted to the courtesy of Dr. Hugh Cabot.

In this case anuria was not present at the time at which a nephrolithotomy was done upon one of the kidneys. The kidney was drained, it secreted abundantly and the patient did perfectly well for the next 18 days. Both kidneys then suddenly ceased to secrete. Dr. Cabot promptly operated upon the other kidney and removed a calculus which was obstructing the outflow of urine from it. Both kidneys at once resumed their urinary function. The wounds healed in due course and the patient was in good condition at the end of six months during which he was under observation. In this case both kidneys were considerably damaged. Neither one was functionally useless. It is possible that neither one alone would have been capable of maintaining the life of the individual very long.

CASE 2. The second case is one reported by Albarran in which nephrectomy was done upon one of the kidneys and the organ was drained. Anuria was not present at the time of this operation. The kidney was stated to be merely enlarged and congested, a calculus was not present in it nor in its ureter. The kidney secreted abundantly through the drainage tube for twenty-three days at the end of which anuria occurred and was coincident with the blocking of the ureter of the other kidney by a calculus. No operation was done. The patient died.

CASE 3. The third case was published a good many years

ago by Ransohoff. Anuria was not present at the time at which a unilateral nephro-lithotomy was performed. The kidney operated upon was pyonephrotic, but, as it appeared subsequently, was capable of performing a useful degree of functional work, in fact, it did two-thirds of the total functional work. The kidney was drained. All went well for one month. Anuria then occurred. On the third day thereafter the other kidney was laid open. It was distended by a large collection of pus which had accumulated owing to an obstruction of the ureter, the nature of which was not learned. This kidney was also drained and permanent fistulæ were established in both loins. Immediately after the second operation the urinary function was resumed, and continued uninterruptedly for the next three years during which the patient was under observation and remained in good health.

In the first two of these cases the inhibitory influence upon the kidney first operated upon appears to have been in the nature of a reno-renal reflex. In the third one, the suggestion is conveyed that the inhibition may have been due to nephrotoxins generated in and absorbed from the second kidney operated upon, and conveyed to the opposite one by the blood current. The other points of interest in these cases are the facts of the inhibition affecting a kidney while it was draining through the loin and therefore indubitably free from obstruction, and, that although both kidneys in both cases were extensively diseased, yet both were functionally capable in a useful degree and it is very probably that the united work of both was essential to the maintenance of life. The bearing of these facts upon the surgical treatment seems to me to be of importance, and will be referred to later.

Difficulties in Diagnosis. These occur when neither X-ray nor ureteral catheter examination is available, and when the history and physical examination fail to give any clear evidence as to the presence of calculi, as may happen in a few atypical cases, or when there are calculi on both sides and one of them is giving rise to no symptoms and is thus likely to be overlooked.

When the two diagnostic methods mentioned above are available, we are not always led by them to correct conclusions. Thus the radiographic pictures may present appearances that

can readily lead to a mistaken interpretation, such, for example as the shadows that are made by "end on arteries," phleboliths, calcified glands, fecal concretions in the intestine or appendix; and again there may be failure to demonstrate a small uric acid calculus in a stout patient, or one whose bowels have not been carefully cleared before the examination.

The ureteral catheter may be arrested by a valve or fold of the inner lining of the ureter and its tip fail to pass as far as the calculus or the calculus may be covered by pus, mucus, or blood and fail to be felt by the examiner or to record any mark on the wax tip of a ureteral sound, when that instrument is employed.

Treatment. The points connected with the treatment of calculous anuria upon which there is a general agreement, and which I will merely enumerate are as follows:

1. The mortality attending expectant treatment is about 80%, that of the operative treatment is about 40%.

2. The nearer the beginning of the anuria operative treatment is applied, the less is the mortality attending the intervention.

3. The treatment of calculous anuria should be surgical. This does not mean, however, that palliative means of treatment are not to be employed if the restrictions specified in the next clause are observed.

4. Surgical treatment should not be delayed at all in the presence of urgent symptoms, if uremic manifestations exist, if it is believed that both ureters are blocked by calculi, or if it is known that the calculus is too large to be passed spontaneously. Delay should not exceed forty-eight hours in any case and in most instances it should not be so long as this.

5. The surest and quickest manner of restoring the suppressed urinary secretion, is by free nephrotomy incision of the kidney and draining it for some days. The calculus should be removed if the patient's condition is not too critical to permit of its being done.

6. The nephrotomy incision should not be entirely closed at the time of the operation.

7. The kidney believed to be the least damaged of the two should be operated upon first.

8. An apparently good condition of the patient and the absence of uremic manifestations does not excuse delay in applying surgical treatment.

9. A long period of anuria and the presence of uremic manifestations are not contra-indications to operation and recovery may follow in a few cases of this sort.

The Therapeutic Value of the Ureteral Catheter. There have been 11 cases reported in which the passage of the ureteral catheter into one or both ureters has restored the suppressed urinary secretion. The surgeons reporting these cases are: Imbert, Kreps, Rovsing, Casper, Hock, Ertzbischoff, Löwenhardt.

Casper and Hock each employed in addition, an injection of watery solution into the renal pelvis through the catheter. In Casper's case the urine did not flow until this was done, seven minutes having elapsed before it was made. In Hock's case it was done at once and the urine flowed at once. There is nothing to show that the eye or lumen of the catheter may not have been clogged in Casper's case and that the success of the injection may not have been due to its having removed the obstruction. It is noted that the injection in this instance caused sharp pain. With the exception of Ertzbischoff's case, in which the catheter remained in place 24 hours before the urinary flow occurred through it, the simple passage of the instrument in the remainder of the cases at once restored the secretion and it is therefore not clear that the injection into the renal pelvis advised by Casper has an advantage over the use of the catheter without the injection.

In Löwenhardt's case, an injection of oil through the catheter into the ureter above the calculus was followed by its spontaneous expulsion. This step would seem to be worthy of further trial.

It does not seem to me that the ureteral catheter should, even when successful, be regarded as other than a temporary expedient for the purpose of securing better conditions under which to operate for the removal of the obstruction in the ureter than those which exist during the anuria, for it is not apparent on what grounds the leaving of a calculus impacted in the ureter and which has already once produced anuria, can be defended.

The Employment of Physiological Saline and of Saccharine

Solutions. I have never succeeded in restoring the suppressed secretion of urine by the use of normal saline solution. I have not employed venesection in connection with it, but from the evidence of others, it would seem to add to the efficacy of the injections and to be well worth trying.

Archard and Jeanbrau recommend the employment of 25.0% solution of sugar for the purpose of restoring the suppressed renal secretion. Jeanbrau reports two case of calculous anuria in which he injected 500 c.c. and 400 c.c. of this solution respectively. Anuria had been present for 56 hours in the first case and for three days in the second one.

The urinary flow was re-established at the end of an hour and a half after the injection in one case, and after an hour in the other. Both patients recovered without further treatment and remained in good condition for a long time during which they were under observation; in one case for five years.

Bilateral simultaneous nephrotomy. I think we may accept the following statements as being true in cases of calculous anuria:

1. Patients with this condition stand in urgent need of having restored to activity all the functionally capable renal substance they possess.

2. The surest way to accomplish this is by a free nephrotomy incision and draining the kidney.

3. Surgical intervention which stops short of freeing all the capable renal substance, fails to give the patient his best chance of life.

4. Whenever a unilateral operation is done in a case in which the kidney not operated upon contains a useful amount of functionally capable substance, the surgeon, in not operating upon that kidney fails to give the patient his best chance of life.

5. The greater the destruction found in the first kidney laid open, the greater the probability that the second one will contain a useful amount of still capable substance.

It is doubtless true that the number of cases in which the unobstructed kidney or both kidneys contain a useful amount of capable substance is relatively small, but this is not a reason for neglecting to take advantage of the circumstance when such is the case, and moreover I think the number of which it is true is larger than is usually believed. In a series of 189 cases of calcu-

lous anuria which I collected, 133 were unilateral and 56 bilateral. Of the former number there were 17 in which the unobstructed kidney contained a useful amount of capable substance; of the 56 bilateral cases there were 22 in which both kidneys presented this condition. In 15 of the 22, unilateral operations were done and all the patients died; in the remaining seven, simultaneous bilateral operations were done and four of the patients lived. The seven operators were Lange, Turner, MacMunn, Moschkowitz, Watson, Babcock, Roving.

I cannot say how many, if any, of the fifteen patients who died after the unilateral operation, would have recovered, had the simultaneous bilateral one been substituted for it, but it is certain that none of them received the benefit of having had set at liberty *all* the capable renal substance that they possessed, for, as I said, there was capable substance in both kidneys in all of the 15 cases.

The condition found in the first kidney operated upon should be, I think, the chief guide in determining whether the second one should or should not be laid open immediately. In the unilateral cases, the finding in the first organ examined, too little substance to make it seem at all probable that the patient's life could have been sustained by its functional capability alone prior to the occurrence of the anuria, makes it fairly likely that the other kidney has a useful degree of functional capability left in it, and it should at once be operated on. In the bilateral cases, the indication is clearer for doing the double operation than in the unilateral ones, and here it should be done always unless there is obviously sufficient good substance in the first organ to make it highly probable that it can support life by its sole functional work.

I would go further than this and say that the simultaneous bilateral operation should be done in all cases in which there are calculi on both sides, even if but one ureter is at the moment blocked, the calculus of the opposite side being in the kidney merely; and—if I may leave the strict text of this communication for a moment—I would add also that I can see no valid reason for failing to remove the calculi from both sides, even when there is no anuria present, for we have seen the danger that may arise from the presence of a stone in the unoperated kidney strikingly illustrated in the cases quoted of Hugh Cabot and of Albarran.

Moreover we are certain that in leaving a calculus in the kidney even if it does not slip into the ureter and cause anuria, as we have seen from those cases that it may do, its presence in the kidney is continuously working injury upon an organ that is already more or less injured by the fact that it has been harbouring a calculus, and which consequently can ill afford to continue to do so any longer. For which reasons, it appears to me to be the part of common sense to remove calculi from both kidneys at one and the same time, whether they have already got into the ureters and caused anuria or not.

The objection that is likely to be opposed to taking this course in these conditions is that shock will thereby be too greatly augmented. This, however, is not, I think, the fact. Everyone of the operators to whom I have referred as having done the bilateral simultaneous operation has made special note of the fact that shock was not an important feature in these operations. It requires longer to operate upon the two kidneys than upon one of them, of course, but under ordinary conditions the double operation should not take more than fifteen minutes or so, and that length of time need not militate against adopting this procedure, in view of the advantages that may be gained from its employment, and of the dangers and disadvantages of stopping the intervention with a unilateral procedure only.

The reasons for preferring nephrotomy or nephrolithotomy to uretero-lithotomy as the first step to be taken in the surgical attack in the cases of calculous anuria.

If we have learned by radiograph or examination with ureteral catheter that there is a calculus in one or both ureters and none in the kidneys and if the calculus is not situated low down in the ureter, why is it not better to remove it directly by ureterolithotomy than to do nephrotomy?

The objections to adopting this course are these: The renal congestion and œdema, which it is very important to relieve promptly and completely, are not relieved with the same certainty as though the kidney itself were laid open. 2. The ureter may not be easy to isolate and if this is the case, we shall have lost much valuable time in the endeavour to reach the calculus and may be obliged to lay open the kidney at any rate. 3. There is always some chance that the radiograph may have presented de-

ceptive appearances and the ureteral catheter may have misled us and that there may have been a calculus overlooked in the kidney.

4. The ureteral operation gives no opportunity for exploring the interior of the kidney and fails to supply drainage for or the chance to remedy intra-renal conditions that may require treatment. 5. If the stone is low in the ureter, near the bladder, the operation for its removal is more difficult than nephrotomy.

These seem to be sufficient reasons for making the kidney and not the ureter, the first point of attack.

Conclusions. 1. The urinary secretion of the unobstructed kidney which is normal, or but very moderately diseased, appears in a few cases to be suppressed by the influence of the so-called reno-renal reflex inhibition originating in the irritation and obstruction of the opposite ureter by an impacted calculus.

2. The proportion of bilateral to the unilateral cases of renal calculus appears to be about 30%. The relative number of cases in which both ureters are simultaneously blocked in the bilateral ones, is much larger than generally stated, perhaps as much as 20%.

3. The number of cases in which the unobstructed kidney, or both kidneys, possess a useful amount of functionally capable substance is larger than is usually stated.

4. In the absence of unfavourable symptoms and if the period of the anuria has been but a short one, the effort should be made to re-establish the urinary secretion by passing ureteral catheters into both the ureters and retaining them in position for a few hours. This step may be supplemented by the administration of saccharine, or physiological saline solution. Combining the latter with venesection probably adds to its efficacy.

5. The employment of oil injections with ureteral catheter above the point of impaction of the calculus should be given a more extended trial in the cases in which it is not known that the calculus is too large to be passed spontaneously.

6. Bilateral simultaneous nephrotomy should be given a further trial in all cases in which calculi exist in both sides whether the two ureters are simultaneously obstructed by them or not, also in all unilateral cases in which the first kidney operated upon is found to be functionally useless or very extensively diseased.

 EDITORIAL

OUR PROGRAM FOR 1910.

WITH this issue the AMERICAN JOURNAL OF UROLOGY enters upon the sixth year of its existence. Established at a time when the word "urology" did not have the familiar ring which it has to-day among American medical men, the JOURNAL has had its early struggles, like most medical periodicals. The history of these struggles is not material just now. Suffice it to say that the JOURNAL has emerged from the test of fire through which it had to pass in its early days, and that it has come to be the representative organ of Urology in this country, as well as in Great Britain.

Constant progression, constant improvement are, however, the keystones of success, and the necessary elements of that evolution without which there is no life. The present year is auspicious for a distinct stride forward. The JOURNAL will, therefore, be enlarged and strengthened, the number of reading pages will be increased by sixteen, a smaller size of type will be employed, and some new features will be added.

The departments of Abstracts and of Book Reviews will be materially strengthened during the coming year. Arrangements have been completed to cover the entire special literature of urology, particularly the contents of all the foreign journals devoted to the urological specialty. Every important new book bearing upon urology or kindred themes will be critically discussed for the benefit of such readers as are on the lookout for useful additions to their libraries.

The JOURNAL will also print brief resumés of the transactions of Urological Congresses and of Urological Societies, both American and foreign so far as space will permit.

With this program, the AMERICAN JOURNAL OF UROLOGY greets its readers in this first issue for 1910, with sincere wishes for a happy and satisfactory New Year.

THE GENERAL PRACTITIONER AS A
UROLOGIST.

THE general practitioner, even in these days of specialization, treats the majority of the cases of genito-urinary and venereal diseases. Every general practitioner treats some cases of this class; for it is quite natural that a patient who has been under the care of a physician for other conditions, and who, in consequence, puts his trust in his physician's ability and judgment, should go to the same doctor when he becomes afflicted with gonorrheal or syphilitic infection, with urinary or sexual disturbances, etc.

The class of diseases which the urologist treats as a specialist, therefore, rightly forms an important portion of the general practitioner's work. The successful practitioner is not what some would have him be—a living directory of specialists, whose business it is to refer patients to the proper authority when there is any condition requiring special attention—he is, and ought to be, a man so broadly trained that he can successfully cope with the simple conditions in any of the diseases of the various special organs.

While the general practitioner has neither the time nor the inclination to practice all the refinements of diagnosis and treatment that comprise the special field of the urologist, he must needs keep abreast with the advances of such phases of urology as will enable him to give the best advice and the best service to his patients.

It is with this need of the general practitioner in view that the AMERICAN JOURNAL OF UROLOGY has inaugurated, with this issue, a department especially intended to serve the physician who treats genito-urinary and venereal diseases, without aiming at specialization.

In establishing this new department, it is our intention to maintain at their present high plane the original contributions and abstracts of current literature, and in these portions of the JOURNAL will be discussed, as heretofore, topics that are of interest chiefly to men specializing in urology. The AMERICAN JOURNAL OF UROLOGY will aim, in this manner, to fill the

needs for an all-around urological journal, both for the specialist and for the general practitioner.

And we might add parenthetically that our contributors of Original Articles will have the satisfaction of knowing that henceforth they will be speaking to a much larger audience than they have heretofore.

FRENCH AND SPANISH NAMES FOR URETHRAL INSTRUMENTS.

WHEN reading French, Italian and Spanish words or genito-urinary diseases, the English speaking reader is usually at a loss to understand what the writers in these Romance tongues mean by *sonde* (French), *sonda* (Ital.), *algalia* (Spanish), and generally suppose these words to mean the same as the English "sound." As a matter of fact the French call "*sonde*" a hollow instrument which in English is known as a catheter, while the word "sound" in our tongue always stands for a solid exploratory or dilating instrument.

The word "sound" comes from *sonda*, Ital., from *subundare* (to submerge i. e., from *sub*, *under* and *unda*, a wave), while the word catheter, is derived from the Greek *Kata*, down and *ienai*, to send (to introduce). Hence etymologically the use of the word *sonde*, *sonda*, sound, for a hollow, evacuating or irrigating instrument seems perfectly proper, and the Latin races have "one on us" when we express astonishment at the custom of using these words in speaking of soft rubber silk or metallic catheters.

The word *algalié* (French) and *algalia* (Spanish), derived from *ergaleion*, a tool or instrument, is found in the older French and Spanish as a synonym for the words "*sonde*" or "*sonda*."

The word "*cathéter*" in French, "*catéter*" in Spanish, means exactly the opposite from what we understand in English by "catheter," namely it stands for the English word "sound." Thus in French and in Spanish what we know as a catheter is a "*sonde*," "*sonda*," while what we know as a

sound is "cathéter," "catéter." Thus the French speak of an ordinary metallic urethral sound as a "cathéter" qualifying it as "cathéter droit" for straight sound, etc. In Spanish we find "catéter explorador," "catéter Beniqué," etc., spoken of when our old friend the metallic sound is meant.

In German we have no trouble in understanding the technical terms used for urological instruments, for the word "Sonde" and "Katheter" have the corresponding meanings, as in English.

The word "Bougie" fortunately means the same practically in all languages. It is derived of course from the French bougie, a candle and is applied by common consent for finer, more or less tapering instruments of exploration. The French and Spanish use it somewhat more broadly than we, for they speak of "bougie conductrice," a metallic guide with a filiform end, and of "bougie pour instillations," the silk olivary perforated tip of the Guyon instillator, etc. The difference between a bougie and a "sonde" (catheter) is primarily that the bougie is an exploratory and dilating flexible instrument, while the "sonde" is an evacuating and irrigating instrument. Bougies with perforations, enabling the operator both to explore and to instil or wash out, are on the borderline.

Another word which sometimes gives trouble in reading French treatises or articles is "mandrin." This means nothing more or less than our word "stylet," a metallic guide introduced into flexible instruments in order to give them sufficient stiffness or a special curve. The French never use our word "Stylet." The word "mandrin" has the same derivation (from mandra, Latin and Greek) as our English word mandrel, a word familiar to all shop workers as applied to the steel shaft of a lathe, or a spiral wire coil used for bending tubes without flattening them.

Abstracts and Translations

TUBERCULOSIS OF THE TESTES IN OLD MEN: Le Clerc (*La Clinique*, November 10, 1909, page 738), reminds us that the usual statement that tuberculosis of the genital organs is rare in old men, is by no means absolutely true as might be supposed. Dufour found but one case of tuberculosis of the genitals in 104 cases examined at Bicêtre, and concluded that this localization was rare in old men. Reclus reported the case of a man aged sixty with tuberculous testicle, and stated that in the entire literature of the subject he was able to find but one case in a man aged seventy-two, and no cases in older men. Since then Augagneur and Mollière, of Lyons, saw in one year three cases in men from sixty-six to sixty-eight years of age. Gueillot cites seven cases in which the age was over sixty. The "record" for age is uncontestably held by Lejars, who castrated a man of eighty-five for tuberculous orchitis, and who reports recovery of his patient (*Semaine Médicale*, 1902, page 12). Le Clerc, in the present paper, reports the case of a man aged seventy-one, in whom he was also compelled to do a radical operation. The man had been in good health and was of robust build. He made a good recovery.

SYPHILITIC NEPHRITIS: A. Gouget (*Gazette des Hôpitaux*, 1909, page 1637), presented this subject in a very complete manner in a recent clinical lecture. In speaking of the diagnosis of syphilitic nephritis he mentioned especially cases in which there were no visible syphilitic manifestations, and in which the syphilitic history was perhaps obscure. In such cases the Wassermann reaction renders invaluable services. Whenever we cannot trace the cause of nephritis to some reasonable source, as for example an attack of scarlet fever, we should think of the possibility of a syphilitic nephritis. We should not be satisfied in attributing a nephritis attack to a cold, as syphilitic nephritis is often induced by exposure to cold or wet, the kidneys in syphilitics being particularly vul-

nerable, apparently. In some cases of syphilitic nephritis the *Treponema pallidum* has been detected in the urine, the theory being that a gummatous formation exists in the kidneys in these cases, and that the detritus from this lesion is eliminated in the urine, along with the *Treponema*. As yet such cases are few in number, but it is possible that we shall be able to detect the *Treponema* in the urine more frequently, as our methods continue to improve in this direction. It is not really necessary to be absolutely sure that a nephritis is of syphilitic origin. The test of treatment may be applied, if there is a fair amount of probability that the kidney is affected as a result of a syphilitic condition.

Much caution should, however, be exercised in the application of mercurial or mixed treatment in cases of supposed syphilitic nephritis. The conditions with which we are dealing in these cases are quite special. We know, on the one hand, that mercurial treatment rapidly improves some cases of syphilitic nephritis, with oedema, anasarca, etc., owing to the fact that the mercury is eliminated almost solely through the kidneys. On the other hand, mercury is not only a systemic poison, but is also a local poison for the kidney, and if the kidneys are insufficient in function, they are unable to eliminate the mercury administered, and consequently no end of harm may come, both to the rest of the body and to the renal structures. We know, in fact, that mercury in excessive doses may induce a mercurial nephritis. Some authors, for these reasons, have discarded mercury in the treatment of syphilitic nephritis, and have substituted for it the iodides, claiming that these drugs aided when mercury failed. This is true, undoubtedly, in some cases, yet mixed treatment has accomplished wonders in the hands of a number of authorities, in the treatment of syphilitic nephritides. Take for examples the cases reported by Waldvogel, by Dieulafoy, etc. A case reported by M. Mosny showed an albuminuria of seventy-two grams of albumin per litre, and within twelve days of treatment with mercury alone the albuminuria fell to 0.50 grams per litre. These cases are by no means exceptional. But, as mercury is here a double-edged tool, it behooves us to use it only in cases in which the

nephritis is surely of syphilitic origin. For this reason it is best always to try the ordinary treatment of nephritis first, and then to use mercury or mixed treatment if the symptoms do not yield to the classical methods. The mercury is best given in the form of injections, as a rapid mercurialization is desired. Care must, of course, be taken never to inject into a region which is the seat of oedemas, otherwise we risk producing serious accidents with our mercurial solutions. Only soluble salts should be used, as we do not wish to introduce into the system a store of mercury which may manifest itself injuriously afterwards.

The urine should be watched carefully for mercurial elimination. If the use of about ten injections does not give rise to any marked improvement, it is best to desist, as further trials may do harm.

In cases in which the patient is suffering from uremia, one may give mixed treatment in addition to the general measures used in these cases. A case of this kind in which mixed treatment has been of great value was reported by Dieulafoy, but it is very important in these cases to know without doubt that the affection was of a syphilitic origin.

THE PRESENT STATUS OF URETHROSCOPY BY MEANS OF IRRIGATION INSTRUMENTS: H. Goldschmidt, of Berlin (*Verhandl. d. deutschen Gesellschaft fuer Urologie*, April, 1909, page 96), read a complete report on this subject before the German Urological Society last Spring. The author describes briefly his irrigation-urethroscope, with its latest modifications. He has sought to work out a model which would enable the observer also to treat the urethra therapeutically, by means of curets, applicators, etc. This was made possible in the most recent modification of his instrument which enables one to use therapeutic appliances without giving rise to shadows across the visual field. The lamp in this instrument is attached on the side of the tube, so that the intra-urethral instruments do not interfere with it. Passing to the results of his work with these instruments, H. Goldschmidt says that the instruments allow of a thorough inspection of the parts

and of a clear distinction of the various anatomic features, as the colliculus seminalis, the ejaculatory ducts, etc. It is possible with the aid of this urethroscope to see the pus issuing from the prostatic ducts and thus to know that there is prostatitis. Long sausage-like masses of purulent material may be seen extruding from the prostatic openings, which are abnormally enlarged, while ordinarily they are not easily visible. The issue of seminal fluid through the ejaculatory ducts is seen as a more forcible stream. The other urethral glandular openings are not so easily located, and their secretion is not so readily detected. However, on moving the fenestra of the urethroscope from place to place one often finds that the irrigation fluid becomes clouded and must needs conclude that the shreds had their origin from the region which has been in contact with the edges of the instrument. Often, also, one may see the openings of Cowper's glands, as two ureter-like depressions in the bulbous portion of the urethra. Quite frequently, however, these openings are not visible, owing to the richly vascular condition of the mucosa in their immediate surroundings.

On examining for pathological changes in the urethra we are confronted, in the first place, by the fact that the distending fluid gives rise to a certain amount of pallor of the mucosa. Thus, the colliculus seminalis, even when it is engorged, appears whitish, pale, but the portion of the urethra immediately in front of the bladder is reddened. Infiltrations of the mucosa, which are later to give rise to strictures, show themselves as distortions of the normal outline of the lumen, and can be seen, sometimes in the shape of transverse folds or steps. Granulations of the mucosa are distinctly seen, while changes in the colliculus seminalis are seen chiefly as alterations in shape, rather than in color.

HYPERAEMIC TREATMENT OF THE URETHRA WITH HOT SOUNDS: M. Porosz, of Budapesth, (*Verhandl. d. deutschen Gesellschaft fuer Urologie*, April, 1909, page 151), advises the use of hyperaemia as a method of treatment of urethritis. Instead of using aspiration, as has been done by Bier's pupils

in the treatment of urethritis, Porosz recommends heat, applied through properly constructed sounds. The sound which he constructed for this purpose resembles a thermophore, and consists of a straight hollow sound of No. 12 Charrière, gradually tapering to a slightly smaller diameter. The patient sits on a chair and the sound is introduced and connected with an irrigator full of hot water. The water is allowed to flow, and the outflow is collected in a vessel standing between the patient's feet. The temperature should be over fifty degrees Centigrade, for the urethra stands great heat. About 56 to 58 degrees may be used. It is best, however, to start with a somewhat lower temperature and gradually to increase the heat of the solution. The whole procedure lasts but ten minutes. During this time the whole body sometimes becomes heated, and perspiration appears on the forehead. At first Porosz used this treatment only in strictures. Later when he found that hard strictures were materially softened by this procedure, he also used the method in subacute and chronic urethritis. He found that pus and gonococci disappeared rapidly, although the cure was not permanent. He had hoped that by this method the mucus shreds in the urine would be brought to a disappearance, but this hope had been vain thus far. The treatment is given every other day. If the patient experiences any burning sensation in the urethra after a treatment, the applications must be interrupted for a time. If several treatments are used in succession, and if a thin discharge is produced, the applications should be discontinued for a few days. A mild astringent solution should be prescribed for this condition.

INTRAMUSCULAR INJECTIONS IN SYPHILIS: Dr. V. C. Peterson describes the use of the 66 $\frac{2}{3}$ per cent. suspension of salicylate of mercury in liquid albolene combined with anhydrous lanolin (*New York Medical Journal*, November 6, 1909). The lanolin is in such amount that it converts the preparation into a molasses-like consistency, so that the albolene does not separate therefrom, thus obviating the necessity for shaking the bottle before each dose in order to secure

proper suspension of the salicylate in the oil. A cubic centimeter of the suspension, which is nominally 15 drops, contains two-thirds ($66 \frac{2}{3}$ per cent.) of 15 grains, which are 10 grains of the salicylate; similarly one-tenth of a cubic centimeter will contain one grain of the salicylate of mercury. As the amount of pain depends upon the bulk injected, this formula, by requiring the smallest possible number of drops, gives the least pain to the patient. As the graduations marked on the glass barrel of the syringe become obscured by the white salicylate beneath, the writer has had the shaft of the plunger marked with these graduations.

PROGNOSIS AND TREATMENT OF RENAL TUBERCULOSIS: Dr. R. F. O'Neil writes on the prognosis and treatment of renal tuberculosis (*Boston Med. and Surg. Jour.*, November, 1909). He summarizes the results of Rafin, Israel, Nicolich, Zuckerkandl, Wildbolz, Caspar and Kapsammer. He finds that the prognosis depends considerably upon the promptness with which the diagnosis is made, as the process rarely begins simultaneously in both kidneys, except in general military tuberculosis, and the accuracy with which the indications for operation are worked out. This applies particularly to the condition of the opposite kidney. The prognosis in early unilateral renal tuberculosis is very good, and is also good in advanced cases when confined to one side. The writer feels that the value of tuberculin and climatic and hygienic measures as against well-chosen nephrectomy is "not proven." He mentions one bilateral case in which, although the bladder symptoms were marked, tuberculin was of great benefit.

To sum up, unilateral renal tuberculosis should be treated by removal of the kidney and ureter if involved, providing, of course, other foci in the body do not contra-indicate operation. Any stubborn secondary bladder involvement is to be treated with tuberculin or after Rovsing's method, and supplemented by climatic and hygienic measures.

With regard to the removal of the ureter, many writers think this is unnecessary, as it will heal as the bladder does. However, the writer has seen a case where the bladder with-

out doubt was kept infected by the remaining diseased ureter.

The Rovsing treatment consists in the instillation of 50 ccm. of a 6% aqueous solution of carbolic acid at 95° F. after the bladder has been cleaned of all pus. This is done several times till the washings return clear. The pain is intense, morphine being required. Instillations are at first daily, but the interval is gradually lengthened to three or four days as the urine gets clearer. The treatment lasts from one to six months.

CIRCUMCISION OPERATION FOR THE YOUNG: Dr. S. E. Newman (J. A. M. A., November 20, 1909), describes the "stitchless" operation of circumcision, the advantages of which are that the blood and lymph can easily escape, the wound requires little attention, and a good result is obtained in five to ten days. The steps in the operation as described by the author are as follows:

1. The penis is held in place by two snaps, which pinch the skin of the organ between the selvage edge of two lengthwise adjusted towels.

2. When the penis is in position, the location of the glans is determined and the amount of superfluous prepuce noted. One hemostat is applied above and one below in an oblique line so that more skin is removed from the under surface than from the dorsal. The hemostats pull the foreskin forward and then the skin is cut off with straight scissors. If the tissue is correctly removed the skin edge will retract to the corona. In the removal of the foreskin of a babe in the first months of life it is well to bear in mind that the parts are all diminutive and that the entire corpus is not much longer than the glans. Carelessness in this consideration results in an almost complete denudation of the organ, the skin retracting to the base of the penis.

3. The inner skin layer, or mucous membrane layer, as it is sometimes called, is slit down the dorsal surface to within one-fourth of an inch of its attachment.

4. The edges of the inner layer are held with a few hemostats to facilitate the removal of all but a small collar at its attached edge.

5. The little bleeding vessels, two to four in number, are caught up and in every case tied with plain No. 00 catgut. This saves much postoperative annoyance.

6. A piece of gauze with a small opening at its center is steeped in melted 10 per cent. boracic petrolatum and applied to the parts at the completion of the operation. The dressing is changed if it comes off and may be discarded completely on the third day. The parts are then protected by boric ointment.

The use of cocain in children is not advisable, and the general anesthetic is probably the most desirable method. Infants only a few years old may be held by two assistants and the operation done without any anesthetic. The child may be strapped to a board after the Indian fashion of strapping the papoose; for this purpose a narrow cushioned board and a few bandages are all that is required to hold the child firmly in place until the operation is ended.

TERTIARY SYPHILIS OF THE URETHRA: According to the thesis of Dr. Rougier (*Annales des Maladies Vénériennes*, October, 1909), tertiary syphilis of the urethra is often, on account of its rarity, confounded with lesions of another nature. Such tertiary lesions can occur rather early in the course of the disease, or after ten or twenty years, and they come on insidiously without local or general reaction, are not contagious, and are usually located in the anterior portions of the canal, more frequently so in women, where they are accompanied by rather painful inflammatory processes. Tertiary lesions, whether ulcerative or gummatous, may injure the urethra either directly or indirectly. In the former instance the lesion is seated in the anterior portion of the canal itself; in the latter it is peri-urethral, is accompanied by pseudo strictures, and may involve the canal itself and cause fistulae. Sometimes another tertiary manifestation is met with, called cylindroid syphiloma. This is a gummatous or sclerogummatous infiltration bordering on a stricture: the canal is hard and comparable to the ramrod of a gun, and it seems as if one palpates the urethra on a sound that he has introduced. The sclerotic form is rare and hard to heal, the gummatous is more common and readily curable.

Such tertiary lesions have been observed, in exceptional cases, among hereditary syphilitics.

These specific cases are easy to recognize, and the diagnosis can be confirmed by the microscope. The prognosis is good, and the mixed treatment with the iodide of potassium and mercury should be instituted early to avoid complications.

RENAL TUBERCULOSIS: Dr. E. Saint Jacques, writing in *le Journal de Medicine et de Chirargie* (vol. iv, No. 20), reviews the literature and a few cases illustrating points in the diagnosis and treatment of renal tuberculosis. Of course the main feature in diagnosis is to determine which is the affected kidney and the functional ability of the remaining one by a comparative study of the urines from each side. As aids in diagnosis the cystoscope and the endovesical separation of the urine after Luys should be routine methods. The latter, while normally of *absolute* value, becomes only of *relative* significance when the bladder itself presents ulcerous lesions. Bacilluria (tuberculous) may be present without albuminuria, but in all cases siduary bacterial tests are insufficient and should be supplemented by animal inoculation. The treatment of this disease is primarily surgical, *i.e.* nephrectomy, but when contraindications, such as depressed general condition, are present, should not give up hope of cure, for this may at times be spontaneous and is assisted by hygienic and therapeutic measures.

SUPPRESSION OF URINE SIMULATING CALCULOUS ANURIA: Dr. Preston King reports (*Lancet*, August 21, 1909), the case of a man 58 years old, admitted to the Royal Mineral Water Hospital, Bath, on August 21, 1908. He was suffering from "rheumatism" in the wrist. Nothing special occurred in the hospital until the 22d of September, when he had an attack of epigastric pain followed by vomiting. The next morning he was better, except for a little tenderness over the left kidney, but he had passed no urine since the afternoon before, and there was absolute suppression from then on until his death on September 29th. There was no uremic smell in the patient's breath or skin and his mind re-

mained perfectly clear up to 5 hours of his death. At the post-mortem the bladder was empty and contracted, the right kidney a small cyst and its ureter a solid cord. The left kidney was enlarged, weighed seven ounces, and presented many small cysts on its surface. There was no calculus or other obstruction in either kidney or ureter. Microscopically the tubuler showed degenerative changes, the glomeruli were apparently normal.

How should we explain the complete absence of symptoms when the only kidney was diseased?

PAINFUL CYSTITIS: Dr. C. Posner claims that ulceration, tuberculosis or tumor are the bottom of every case of painful cystitis (*Berl. Klin. Wochensch.*, Oct. 18, 1909). In the tuberculous form general measures, especially general tuberculin treatment should be instituted. All local treatment of a tuberculous bladder is extremely painful. A cystitis which becomes aggravated under silver nitrate is strongly suggestive of tuberculosis. Corrosive sublimate, or as a last resort carbolic acid in 6% solution may be of use. Simple incision into the bladder has also been of service. In non-tuberculous ulcerations silver nitrate instillations applied thru a cystoscope to the ulcer itself may cause complete cure. Radical removal of the ulceration should also receive consideration and in cases of inoperable tumor relief may be obtained by injections of warm olive oil into the bladder. Physical and dietetic measures are of great importance, especially local application of heat, sitz baths and avoidance of condiments. Milk is the best diet. The author would welcome the technical improvement of urinals so that they might be used to advantage in the out-door treatment of this condition.

OPERATIVE TREATMENT OF GONORRHEAL EPIDIDYMITIS: Dr. F. R. Hazner reports 12 new cases operated on for gonorrheal epididymitis (*Med. Rec.*, Dec. 4, 1909). Together with the 21 cases reported last year this makes a total of 33 cases in which the author has performed epididymot-

omy. No other organism than the gonococcus was found in any of these cases. The tunica vaginalis contained fluid in all instances, but two in which the visceral and parietal layers were agglutinated by a great amount of fibrinous lymph. In 25 out of the 33 cases pus was present. The general results of this method of treatment were good. All the 12 new cases recovered. Of the entire number of patients operated on to date, pain was relieved in all but one. The author believes that induration was much less than after palliative treatment. The testicle was not involved; in but one case was there a profuse postoperative urethral discharge. There was one recurrence. The average period of confinement in the 12 new cases reported was but four days.

TUBERCULOUS TESTICLE IN A CHILD AGED SIX MONTHS: Dr. W. F. Cholmeley, writing in the *Lancet* for October 23, 1909, reports an interesting case of tuberculous testicle in a child of six months. The scrotum was swollen, red, and very painful and the condition was supposed to have come on after an injury. Under hot fomentations the condition improved, but recurrent later when an exploratory incision was made. At that time the skin covering the left half of the scrotum was much reddened, there was a large tender swelling, evidently an inflammatory enlargement of the organ. The cord was thickened, the vas could not be felt. Temperature was normal. Incised was made in the inguinal region and the thickened testicle and distended tunica brought out into the wound. On opening the tunica a quantity of turbid fluid escaped. Under the globus major was a small collection of tuberculous-looking pus. The testicle was removed. Two weeks later the child died of broncho-pneumonia following measles. A post-mortem showed tubercle bacilli in some bronchial glands, left pleura, both lungs, mesenteric glands, and left kidney. Examination of the testicle showed no bacilli but a clearly tuberculous lesion.

NOGUCHI'S SYSTEM OF SERO-DIAGNOSIS OF SYPHILIS: In the *Journal of the American Medical Association* (Nov.

6, 1909) Dr. Hideyi Noguchi describes his single system of sero-diagnosis of syphilis. He summarizes as follows: Each factor is separable, titrable, definite. The proportional quantity of each factor is adjustable. Complement from guinea-pig. Can be used in fresh as well as dried state. Latter work stable; former preferable. Amboceptor from rabbit immunized to human corpuscles and can be used in liquid state as well as dried on paper; latter more stable. Corpuscle suspension can be made from blood of patient or normal individual. Patient's serum can be used in fresh, old or inactivated state and if necessary, serum can be dried on filter-paper and examined after an indefinite length of time. Antigen prepared from normal or syphilitic tissues by alcoholic extraction and subsequent acetone fractionation. Can be made more stable by impregnating filter-paper. No danger of introducing excess of amboceptor or complement. Quantity of serum to be tested very small and so adjusted as to avoid over-sensitiveness. When inactivated, four to five times the amount used. Test, like all the others, requires a trained man, but not a fully equipped laboratory, as is necessary with all the other systems.

ONE HUNDRED NEPHRECTOMIES: Widloz reports his results in one hundred cases of nephrectomy (*Corresp. f. Schweizerische Ärzte*, Oct. 15, 1909). Ninety operations were for tuberculous kidney. His mortality was 4%; from advanced myocarditis, from uremia, from pulmonary embolism, and from paralytic ileus. He uses ether for his anesthetic, and intravesical segregation of the urine as his chief diagnostic aid. In one case this method failed to give decisive information as to whether the renal tuberculosis was unilateral or bilateral. After eight years, however, ureteral catheterization showed that but one kidney was affected and nephrectomy was followed by cure. As a rule the tuberculous process caused us trouble until the bladder was involved, and in one case the kidney was totally destroyed without giving any symptoms whatever, but occasionally the kidney process may simulate colic from renal calculi.

POST-OPERATIVE TREATMENT OF URETHROTOMY: Dr. H. M. Christian gives a few practical suggestions for the post-operative treatment of urethrotomy (*Amer. Journ. Surgery*, Dec., 1909). In regard to internal urethrotomy the author advocates the retention of the catheter for 48 to 72 hours, and the passing of full-sized sounds at regular intervals after the operation. The successful after-treatment of external urethrotomy hinges largely upon the control of hemorrhage during, and of the persistent oozing, after the operation. The best means of insuring good results is to make the packing on the wound tight enough to control bleeding, to put a good-sized gauge compress against the perineum, and to apply a cross-of-the-perineum bandage. The author emphasizes the fact that the packing of the wound should be light in character and that full-sized sounds should be passed at regular intervals as after internal urethrotomy. The primeal tube should be removed in about six days and the patients should be encouraged to sit up upon removal of the tube.

REGARDING THE SUBSTANCE RESPONSIBLE FOR THE CAMMIDGE REACTION IN THE URINE: Smolenski, of St. Petersburg (*Zeitschrift f. Physiol. Chemie*, Vol. 60, page 119) finds that the Cammidge reaction is due to the presence of cane sugar in the urine. This reaction, as is well known, produces a deposit of phenolhydrazin in urine when the latter has been boiled with an acid. In a case of cancer of the stomach in which the patient's urine showed this reaction, Smolenski was able not only to isolate the substance producing the reaction, but also to demonstrate that it showed all the characteristics of saccharose. The Cammidge reaction, therefore, is not necessarily characteristic of pancreatic disease.

RENAL CALCULI: Dr. Perry Bromberg reports a unique case of renal calculi (*So. Med. Journ.*, Dec., 1909). The patient was a lady of 69, who six or eight years ago was seized while bathing, with intense pains in the back, accompanied by urgent desire to urinate, which terminated with the passage of a large number of stones. The peculiarity of the stones is the uniformity in shape, the almost identical size, weighing approximately one-fifth of a grain each, the perfectly smooth surface, which seems rather highly polished, and the color when first passed. They were covered with a tough mucus and had the appear-

ance of being enclosed in a sack, but when water was added it was apparent that it was only a mucous covering. The stones themselves when fresh, were remarkably smooth, highly polished, and of a dark olive green color.

These attacks were frequent during the following two years, the patient passing several hundred of the stones. Their chemical composition was pure calcium phosphate.

IMPORTANCE OF BALSAMS IN THE TREATMENT OF GONORRHEA: Dr. M. M. Bremener of Moscow reviews the history of balsams extending back more than one hundred years and then discusses the properties and action of a large number in use to-day. (*Therapeu. Obozrenie*, 1909, No. 20). Preference is given to Santyl-Knoll which is especially valuable since tasteless and free from disagreeable by-effects. In general the author agrees with most other authors, that balsams are valuable adjuncts in the treatment of gonorrhea. The therapeutic action of all employed at present is about the same, hence the choice will depend chiefly upon the presence or absence of by-effects. In this respect, the preparations vary considerably. Balsams of copaiba, and oil of santal with its numerous substitutes give rise to pronounced after-effects, which are considerably less marked though not entirely absent with such preparations as blenal and gonosan. Numerous publications and the author's own experience show that in Santyl-Knoll the after-effects are reduced to the lowest possible degree.

OPERATIONS ON THE LOWER PORTION OF THE URETER: Dr. C. L. Gibson describes his technique in operations on the lower portion of the ureter, and reports two successful cases (*Trans. Amer. Ass. Gen.-Urin. Surg.*). He claims for his method the following advantages: The incision of the abdominal wall is of such a size and situation as to give an ample exposure for the easy recognition of the ureter, for the necessary manipulations, and security from injury to the other pelvic structures. The incision is extraperitoneal, and it makes the ureter so freely accessible that any incision in it can be as easily and accurately repaired as a lesion of the intestine. There is no unnecessary trauma or malhandling of the tissues, so that the completion of the operation leaves a perfectly dry field, doing away (when the continuity of the ureter has been restored) with the necessity of drainage—a prophylactic measure against subsequent hernia. The incision of the abdominal wall is so planned as to produce the least damage, allowing when it is closed without drainage a firm union without risk of hernia. Finally, the whole operation is so simple, so free from annoying hemorrhage or other pitfalls, that it can be performed without undue waste of time—half an hour or less.

The skin incision runs from the mid-line about a finger's breadth above the pubes, horizontally outward nearly parallel to Poupart's ligament at first, and curves rather sharply upward at its mid-point to end about opposite the anterior superior spine of the ilium. This incision is deepened in the same line through the aponeurosis of the external oblique and the internal oblique muscle—the latter is the only structure which suffers any real damage, and only to a slight degree, for the lower part of the incision runs about parallel to its fibers, only the ascending leg cuts across a small part of these fibers. The incision stops short of the transversalis, which is not disturbed at all. With efficient retraction of the upper flap the external border of the rectus muscle is identified and the *fascia* of the transversalis is now divided by a vertical incision close to and parallel to the rectus—that is, at *right angles* to the original incision. Two retractors are now inserted, the outer one retracts the cut edge of the transversalis outward, the other pulls the rectus muscle well toward the mid-line. A generous space is thus obtained, situated well toward the mid-line (the lower part of the ureter is practically in the mid-line, and difficult of access by other extraperitoneal exposures). The floor of this space is occupied by the peritoneum. The patient being in a complete Trendelenburg position, the peritoneum is easily and gently pushed away, and a free access to the pelvis is secured. So ample is the space and view, that the whole hand can be introduced under the control of the eye. The ureter is released from its surroundings and easily brought to the external level of the wound. In this way it can be handled as readily and freely as a loop of intestine.

After removal of the stone, the ureter is closed with a double layer of the finest chromicized catgut, the first going through all the layers, the superficial sutures reinforcing the first. The ureter is then dropped back. The operative field, protected by a gauze pad during the ureteral manipulations, will be found perfectly dry. The wound is closed without drainage.

SUPRAPUBIC PROSTATECTOMIES: Dr. C. H. Chetwood reports six cases of suprapubic prostatectomies (*Trans. Amer. Assoc. Gen. Ur. Surg.*, 1909). His technique is as follows:

The patient is brought to the operating room with the bladder washed. The anesthetic used has been in most instances ethyl chloride and the drop ether method. The bladder is emptied, and while the catheter is left in place the patient is immediately put into the Trendelenburg position. An incision is made above the pubis, about three inches in length, separating the muscles and exposing the pre-vesical fat. An assistant now inflates the bladder with air, while the wound is separated by retractors. The structures overlying the bladder are stripped upward to the upper extremity of the wound with a piece of gauze. In-

cision is now made through the bladder, running well downward. This incision may be enlarged later, after the exploration with the finger has been completed.

Exploration with the finger is usually sufficient to give an adequate idea of the prostatic growth, but retractors may be inserted and ocular observation made if desired. In one of the cases of this series the cancerous nature of the prostatic growth was recognized by palpation at the time of operation. A place is selected for the incision of the mucosa over the prostatic growth, which is usually to one side of the median line at a point where the lateral and median growths meet. Into this incision the bare finger is inserted, and by gentle manipulation it is ascertained that a good line of cleavage is obtained. Separation of the prostatic growth is then accomplished with the aid of the gloved finger of the other hand in the rectum.

As to the all-important matter of drainage, the author has for two years past been using a double tube, one large and one small, for continuous irrigation; this in the first twenty-four to forty-eight hours is an important feature, to prevent blood-clotting inside the bladder.

The size of the tube used is from three-eighths to five-eighths of an inch in diameter, with the small catheter attached; besides this, the author often uses an indwelling catheter in the urethra, both because it is useful to irrigate through, should the other attachment become clogged, and because it smooths the newly forming posterior urethra during cicatrization, and is already in place for use after the bladder tube is removed, thus avoiding the unnecessary bruising of the tissues which sometimes occurs upon the first introduction of a catheter after operation.

The system of siphonage employed by the author consists of an irrigator jar which empties at slow speed into a tin cup, which in turn overflows at regulated intervals into a funnel, and thus provides intermittent siphonage of the bladder. This siphonage is especially useful during the first five to seven days after operation, when it is important to keep the suprapubic wound clean and as dry as possible, so as to promote union of the parts sutured.

The period when it is most difficult to keep the patient dry and comfortable is that between the time when the suprapubic tube is taken out and before the suprapubic fistula is sufficiently healed to permit voluntary urination. During this period the author uses the indwelling catheter in the urethra, strapping the suprapubic wound over tightly with adhesive straps. This stage is reached in a much shorter period when the drainage opening left at the time of operation is comparatively small the tissues not lacerated, and early granulation encouraged by keeping the wound comparatively clean and dry by means of satisfactory drainage provision. The catheter is kept in place from four to five days to a week, and then voluntary urination occurs with moderate leakage.

THE GENERAL PRACTITIONERS DEPARTMENT

THE EQUIPMENT OF THE GENERAL PRACTITIONER FOR THE TREATMENT OF GENITO-URINARY DISEASES

IN beginning our talks on the subject of "Urology for General Practitioners," what can be more logical than the discussion of the tools which a physician requires for the treatment of the more common genito-urinary affections? A good workingman does not complain of his tools, because he uses good tools—the proper one for the purpose for which each is designed. The same holds good in genito-urinary work. Much of a physician's success, much of his satisfaction, of his comfort, as well as the patient's ease, depends upon the tools used and the manner of using them.

Fortunately, the general practitioner treating urological conditions does not require a vast number of expensive instruments. What instruments he gets, we would urge him to get of the best quality. A long experience has taught us that instruments that are made to sell are worse than useless. Get tools that are made to use. These should be as simple as possible, yet each must be made properly for its proper function. Our advice, therefore, is: Do not buy "cheap" instruments or apparatus, because the price seems more reasonable. Buy only of makers of recognized standing, whose guarantee means something. In the following we shall try to give the reader all the needed information about each class of instruments, which will enable him to choose his tools wisely at the start.

The Office Table.

If he has not already purchased an examining table, we would recommend one of the "aseptic" variety, made in white enameled metal, for the man who expects to do much surgical and genito-urinary work along with his general practice. A table should be chosen which can also be used for gynecology. Some of the tables sold can be easily adapted for gynecologic use by the addition of a step or footstool made to match the table, and of a pair of stirrups. The only position which an ordinary metal table does not give is the Sims. If the practitioner is accustomed to work in this position (as few men are, we believe,

these days), he must see to it that his table also can be tilted sideways. The only tables which give this position, so far as we know, are those made upon wooden cabinet bases, with leather cushioned tops (Allison, Clark & Roberts, etc.). These wooden tables are not adapted for surgical or urologic work on any considerable scale. They are perhaps the best for the examinations of patients of all classes. If space and means permit, two tables may advantageously be used,—a wooden one for examinations, and a metal table, which can be obtained at a much lower figure, for treatment.

The metal tables offered by various makers have been carefully examined by us, and the following are the points which we offer for the benefit of those who contemplate investing in one of these tables: In the first place, there seems to be no real need for a very heavy, clumsy table, the wielding of which, with a patient in position, requires much muscular effort, with a constant danger of a sudden tipping forward or backward, if the "operator's" strength should give way. A table built flimsily, which soon becomes weak and wobbly, is the other extreme to be avoided. See to it that there is no way of jamming the patient's fingers or your own hands between the parts underneath and the top or seat of the table. More than one painfully injured finger has been the result of disregarding this detail. The writer knows of a case in which the patient's finger was irreparably crushed in this manner and had to be amputated. The table in question was made by an excellent house, and the occurrence happened in the office of a urologist of great experience.

Unless price is no object, and if you have a man (not a housemaid), to clean your office or operating room, do not get a metal table with plate glass seat, back and foot-pieces. These tables require thorough cleaning daily, and are by far the best from the viewpoint of asepsis. They are, however, heavy to handle, and subject to more or less breakage, which is an expensive feature. There is no reason why the back and the foot-piece of the table should not be of steel. The seat can be advantageously of plate glass or, as is the case in some of the latest tables made, of porcelain or white glass. The glass pieces are removable and easily cleaned. The fewer nickel-plated fixtures are attached to a table, the better, for they never look well after a month or two, unless they are very thoroughly cleaned daily. Experience shows that even in scrupulously kept offices it is impossible to keep elaborately nickeled parts bright and clean. All nickeled portions should be washed off with alcohol first (denatured, will do) and then wiped with a dry chamois skin.

No matter what table you buy, leather, or better, black rubber, cushions are required. The table should have a central slit in the seat, draining by means of a gutter into a pan or pail beneath. The cushions should be slit to correspond. For examinations in the lithotomy position one needs metal leg holders, which can be attached to the table when needed.

In resuming, we may say that a table of moderate price, not too heavy, and not too complicated, should be preferred to one of the elaborate and expensive creations of the manufacturer's ingenuity which dazzle the eye but do not give half the satisfaction they are supposed to give.

The Sterilizing Outfit.

Any good sterilizer for instruments, or better, one for instruments and dressings combined, will do for ordinary urologic work, provided it be of a size large enough to take such instruments as sounds, etc. A sterilizer 16 or 18 inches long is usually employed. The sterilizer should be placed very conveniently near the examining table, and, if possible, near the water faucet. Preference should be given to a sterilizer with a stop cock or tap near the bottom, which allows of drawing off the water when the apparatus is not in use. If this is not done, rust forms in the boiler and upon the wire trays used for boiling instruments. If rust should form in the sterilizer, the boiler should be boiled out with a solution of washing soda and scrubbed out with a stiff brush. Rust particles deposited upon sounds, etc., are apt to cause irritation. In order to avoid direct contact of instruments with the boiler or the tray, it is best to wrap sounds, catheters, etc., in thin soft towels (about 20" x 36", made of "glass toweling" and used only for this purpose) before placing them in the sterilizer. Instruments (especially dilators, etc.), are thus saved from injury and rust for a long time.

Next to the sterilizer, if possible, upon the same table, one should have a cooling tank or tray. The latter is really indispensable when treating patients. The instruments, e. g., urethral sounds, are removed from the sterilizer by picking them out with a large dressing forceps and are dipped into the cooling tank or tray containing cold sterile water. This tray is an inexpensive, oblong, rather deep, receptacle, of enameled (agate) metal with a well-fitting cover. The tray and cover are rendered sufficiently sterile for ordinary purposes by filling with water, setting on a gas stove, boiling the water, and then allowing it to cool. The tray can be boiled separately, of course, and filled with sterile water from a receptacle.

This brings us to speak of the water sterilizer. Every practitioner who does surgical and special work needs sterile water constantly. If possible, he should have in his office a tank wherein water can be boiled over a gas burner. This sterile water can then remain in the tank and be used hot or cold, as desired, or a supply of sterile water can be filled into suitable bottles or closed jars. Inasmuch as solutions of varying temperatures are often required, the best way is to have the water boiling in the tank or kettle at the beginning of office hours, and then to mix the hot sterile water with the requisite amount of cold sterile water when required for a solution.

Finally the practitioner who is treating genito-urinary diseases also needs a special sterilizer working by means of formaldehyd vapors, for sterilizing bougies, catheters, etc., made of perishable material, such as woven silk, etc. This can be made by any tinsmith much less expensively than it can be obtained from the dealers. All one needs is an alcohol lamp with a small receptacle over the flame into which formaldehyd pastils are to be placed. These pastils and the lamp can be purchased at reasonable cost. The sterilizer itself is nothing but an oblong box, like one of the old-fashioned bread boxes, made of tin, with a small window fitted with glass, and an opening in the top, which closes by means of a slide. The window is at one end, where the lamp is placed. The instruments can be put on the floor of the box or on shelves of wire gauze within the box. The lamp is lit, the tablets put in the receptacle, the instruments are wrapped in gauze and put in the box and the door is closed. After all the tablets have vaporized (about 20-30 minutes), the lamp usually goes out, and the vapors have done their work. All instruments sterilized in formaldehyd must be washed off in sterile water before being used. They are put into the cooling tray therefore, as the boiled instruments, just before they are used. If they are to be kept sterile, they are wrapped in sterile towels, or (if catheters, etc.), they may be kept in sterile glass tubes, with a few formaldehyd tablets at the bottom.

The Irrigating Outfit,

When the so-called "irrigation treatment" of gonorrhea first came into vogue, it was generally assumed that good work in this line could not be done without the elaborate and rather costly apparatus suggested by Janet, and modified by the late Valentine. Since then as experience brought out the practical features of the various apparatus recommended for this treatment, and for general irrigation of the urethra and bladder, there has been a steady tendency for simpler and

less complicated apparatus. The old Valentine apparatus, also, had a rather cumbersome "cut-off" which has since then been materially improved. The manufacturers of surgical appliances, both here and abroad, continue to advertise elaborate irrigating outfits, but the only object of their elaborate machinery seems to be to impress the patient. Somehow, some patients will have more confidence in the treatment if it is given to them from a very scientific looking appliance with movable tanks working upon a rack and pinion system, or with various other accessories,* than when he gets the same treatment given with a simple irrigating jar, or even a fountain syringe.

As a matter of fact, a very serviceable irrigating outfit can be rigged up by any physician at the cost of a few dollars, if he knows how to go about it. We might add that this outfit, exactly as described here, is now in use by a number of specialists in New York, men who prefer it because of its simplicity, its durability, and the fact that it is never in the way and never out of order.

The apparatus consists of a glass tank holding one or two litres (as desired), slightly conical in shape, with a rounded projecting rim at the top,** a soft rubber tube made of the best quality rubber (black or red) of a diameter safely fitting to the outlet of the tank, and of an appliance for the control of the flow, later to be described.

The best way to rig up the irrigator is to have a wire collar with a hook holding the top of the glass tank in a balanced position. This wire arrangement is then drawn up to the ceiling of the room by means of a strong, supple cord, working in a good pulley. The irrigator should preferably be hung just above the foot end and to one side of the treatment table. This position enables one to fill the tank conveniently when it is lowered and also to watch it while irrigating. The pulley is attached to a ring screwed into a beam of the ceiling, or to a gas pipe running across the ceiling. If necessary, a second pulley, which is laterally or obliquely fixed in a metal holder, can be screwed into the wall, and the cord can then be led through this lateral pulley, down to an ordinary metal cleat at a convenient height. All the metal

* Thus, for example, one instrument maker in Paris, who makes the irrigators for Guyon and Janet, advertises an apparatus working by hydraulic pressure. The irrigating tank is raised or lowered by means of water pressure controlled by pedals. The price of this apparatus is about \$50 plus duty. Janet's apparatus, made by the same firm, is sold at about \$35.

** The ideal tank would be, of course, one which could be closed when not in use. The trouble is, that a closed tank cannot be used for irrigations by hydrostatic pressure, for obvious reasons. A tank with a partly closed top which can be completely occluded with cotton is the ideal tank, but is more expensive and is not sold in this country, so far as we know.

parts of this arrangement should be of galvanized iron, enameled white if desired.

The tank should swing easily up and down when pulling the cord. A series of knots may be made in the cord to indicate various heights or pressures. The beginner had better mark by means of such knots the accustomed height of the tank. As we grow experienced and can judge the amount of pressure by the unaided eye we can dispense with the knots in the cord.

When not in use the tank is hoisted to the ceiling, the tube and "cut-off" being slung alongside it upon a hook, projecting from the metal collar. (These collars can be obtained ready-made at any of the instrument supply house). The entire apparatus is thus swung out of the way when not in use.

The glass tank and the rubber tube can be sterilized by boiling. They should be flushed out at the beginning of each day's work with hot bichloride solution and the glass tank should be frequently washed and scrubbed to avoid unsightly deposits of silver or of manganese. It is strange that some physicians seem to regard a grimy looking tank as a hall mark of a large genito-urinary practice, and how men whose training should have taught them better tolerate irrigators with dark brown or black coating upon the glass.

To clean deposits of silver salts in these tanks, it is best to soak the glass irrigator (not the rubber tube) in hot sodium hydroxide solution, and then to remove the softened deposits with newspaper wads or with a brush. If the tank be then rinsed in running water and sterilized by boiling, it will look like new. To remove deposits of permanganate, the glass tank should be scrubbed out with a solution of oxalic acid.

The rubber tube should always be completely emptied after the apparatus has been in use. There is always fluid adhering to the sides of the tank and to the tube, and hence, it is best to allow the tube to drain thoroughly at the end of the day's work. If this precaution be taken, the rubber will last for a long time.

The "cut-off" is an appliance for shutting off the flow of water and for controlling the volume of the stream. There are any number of varieties of these fittings. There are specialists who never use any cut-off but rely upon their finger to shut off the fluid when needed. This is Spartan simplicity with a vengeance, for some sort of "cut-off" is needed when one is suddenly called to the telephone while irrigating a patient, and in many other emergencies. A good "cut-off" is indeed a great help to successful irrigation.

The ordinary tube clamp, such as is used on fountain syringes does not allow of a convenient regulation of the flow. The same is true of the pinchcock, such as those used for burettes in chemical laboratories. The best "cut-off" to use is one which allows of an easy and very gradual regulation of the rate of flow. There are a number of these on the market, but we would recommend those constructed of hard rubber with an inlet allowing the tube of the irrigator to be attached; with a spherical receptacle holding a valve which is regulated by means of a lever, and an outlet to which the tips can be fitted. The appliances known as the Chetwood or the Ayres "cut-off," answer all purposes.

In order to prevent the splashing of returning liquid, a shield of hard rubber or glass must be used. We would recommend the hard rubber shield as satisfactory and less apt to be broken. The best shape is that of an inverted bell, but this is a matter of personal choice and many prefer hemispherical shields. We shall speak about irrigating tips in a future issue when discussing the technique of irrigation. An assortment of these should be at hand and they should be made preferably of glass, so that they can be boiled.

UROLOGIC BREVITIES

NO ONE can swear that a Gram negative diplococcus which has all appearances of Neisser's germ is a gonococcus unless the organism be grown in cultures by an expert in bacteriology. And even then there may be just a wee bit of doubt.

A negative culture test in a man who is about to marry does not *insure* his wife against gonorrhœa any more than does a negative Wassermann test *insure* her or her child against syphilitic infection.

A chronic localized patch of urethritis, especially in the neighborhood of a stricture, will give a recurrent discharge, lighted up by sexual excitement or by alcoholic indulgence.

Non-specific urethritis may be caused by intercourse with a woman during menstruation, but in all such cases be sure to look for gonococci. If any were present in the uterus or cervix they are apt to come out of their lair just at the time of the "periods."

A solution of argyrol to be effective must be perfectly fresh. After it has stood six hours or more its effect begins to grow less trustworthy. This holds good with practically all the newer silver salts. Dark, well-closed bottles and a dark corner are preventives against decomposition.

When using ordinary aniline dyes for staining gonococci, e. g., methylene blue, a better picture of the pus cell and epithelia and a pretty contrast with the darkly stained germs can be obtained by using 1% sodium chloride solution instead of plain water to wash off the dye from the smear.

To hold an injection in the anterior urethra we may use a special clamp, but if none be at hand, put a wire loop around the shafts of a dressing forceps, cover the glans with some cotton after the injection and apply the forceps to the end of the glans, pushing the wire loops towards the handle of the forceps till the clamp holds firmly, yet gently enough to avoid pain.

BOOK NOTICES.

DIE TOPISCHE DIAGNOSE DER CHRONISCHEN GONORRHOE UND DER ANDEREN BAKTERIELLEN INFECTIONEN IN DEN HARN-UND GESCHLECHTSORGANEN DES MANNES. Von Dr. Rudolf Picker, Budapest. Oscar Coblentz, Berlin, 1909. Price, M. 1.60.

An interesting and useful brochure, containing some valuable points on the diagnosis of chronic gonorrhea, with well executed illustrations and one colored plate.

DIE GONORRHOE DES MANNES UND IHRE KOMPLIKATIONEN. Von San.-Rat Dr. Hans Wossidlo. Second revised edition, with 54 illustrations in text and 8 colored plates, partly in color. Georg Thieme, Leipzig, 1909. Price, in paper 12 Marks.

Dr. Wossidlo's text-book is well and favorably known, and we are glad to see a second edition. Dr. Wossidlo is a safe guide, conservative, is not guilty of an excessive *furor operandi* and his volume is cheerfully recommended. The illustrations are well executed.

PATHOLOGIE UND THERAPIE DER GONORRHOE IN VORLESUNGEN. EIN LEHRBUCH FÜR AERZTE UND STUDIERENDE. Von Dr. W.

Scholtz, a. o. Professor an der Universität Königsberg i. Pr. Mit 2 Tafeln und 22 Abbildungen im Text. Zweite erweiterte und umgearbeitete Auflage. Jena: Gustav Fisher, 1909.

Dr. Scholtz offers, in this convenient volume, a practical treatise on gonorrhoeal infection in both sexes, the chapters on gonorrhoea in women having been added in this, the second edition, in order to cover the subject completely.

The author is evidently a pupil of Neisser, for his work represents the views of the Neisser School throughout. The classic principle upon which all the pathology and therapy of gonorrhoea is founded according to this school, is that the presence of the gonococcus is necessary in both acute and chronic conditions, before the term gonorrhoeal can be used, or before a case can be treated as a gonorrhoeal infection. There is, of course, no possible opposition to this thesis so far as acute infections are concerned, but when we come to chronic urethritis, anterior and posterior, chronic prostatitis, etc., we find that while Neisser's pupils insist that no gonorrhoea exists without the gonococcus, and that consequently, unless careful search reveals this germ, we cannot call a chronic case one of gonorrhoeal infection, the School of Oberländer, Kollmann, and Wossidlo, insists that chronic lesions are very frequently present without any gonococci appearing upon most careful examination. These latter authors consider such cases as gonorrhoeal whenever the history of gonorrhoeal infection can be obtained, and this is the view now held by the majority of genito-urinary specialists. The only possible practical aspect of this rather hair splitting distinction is the question of using germicidal substances directed against the gonococcus, in chronic cases in which this germ is not discoverable.

As might be expected from a writer of the Neisser School great stress is laid upon thorough microscopical and cultural examinations for the presence of gonococci, especially for the purpose of determining whether a patient should be allowed to marry. In this the author sounds a laudably conservative note, without going to the extremes that are reached by those who insist that marriage should be prohibited to all men who have any traces of shreds, or a few pus cells in the prostatic juice, without any gonococci.

For the rest, the volume contains, in a pleasing, easily readable form, a very complete and very practical exposition of gonorrhoea, particularly its diagnosis and local treatment. We regret to find nothing said of vaccine treatment, but possibly this was omitted because the subject is still in such a hazy state of nascence.

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A METAL DRAINAGE TUBE FOR CONTINUOUS BLADDER IRRIGATION AFTER PERINEAL SECTION FOR PROSTATECTOMY, RE- MOVAL OF INTRAVESICAL GROWTHS OR STONE

By H. G. HAMER, M. D., Indianapolis, Ind.

THE tube herein described and illustrated was devised by the writer in 1904 to take the place of rubber drainage tubes after perineal section in certain cases where rubber tubes gave very moderate satisfaction.

This tube was devised to obviate the difficulties often encountered in the adjustment of soft rubber drainage tubes and the impossible application of effective gauze packing, where hemorrhage is considerable, without collapsing the tubes by the pressure of the packing.

Where hemorrhage is slight or moderate it may be controlled by packing about a single catheter drainage tube of large size and little fear entertained as to the formation of blood-clots and severe distention of the bladder from the clogging of the tube, the bladder being kept clear by an occasional flushing. But where hemorrhage is profuse and the danger of shock more in evidence it is highly important that the bleeding be controlled as perfectly as possible and that shock be not increased by pain which is very sure to be the case if the bladder becomes greatly distended and efforts to clear it of blood-clots only add to the distention and pain.

After perineal operations continuous irrigation of the bladder for several hours through two rubber drainage tubes, one large and one small, if the tubes are of the proper proportionate sizes, will ordinarily keep the bladder clear and the

patient comfortable and the bed dry. When the tubes become blocked and the bladder distended, uncontrollable bladder spasm is caused; and during these expulsive efforts the bladder contents are discharged around the tubes and occasionally the tubes and packing are also expelled.

The practical value of this tube in obviating the difficulties above mentioned has been demonstrated by its use in a considerable number of perineal sections for prostatectomy, removal of stones and intravesical growths and contracture of the vesical orifice, in the practice of Dr. W. N. Wishard, while acting as his assistant during the past five years.

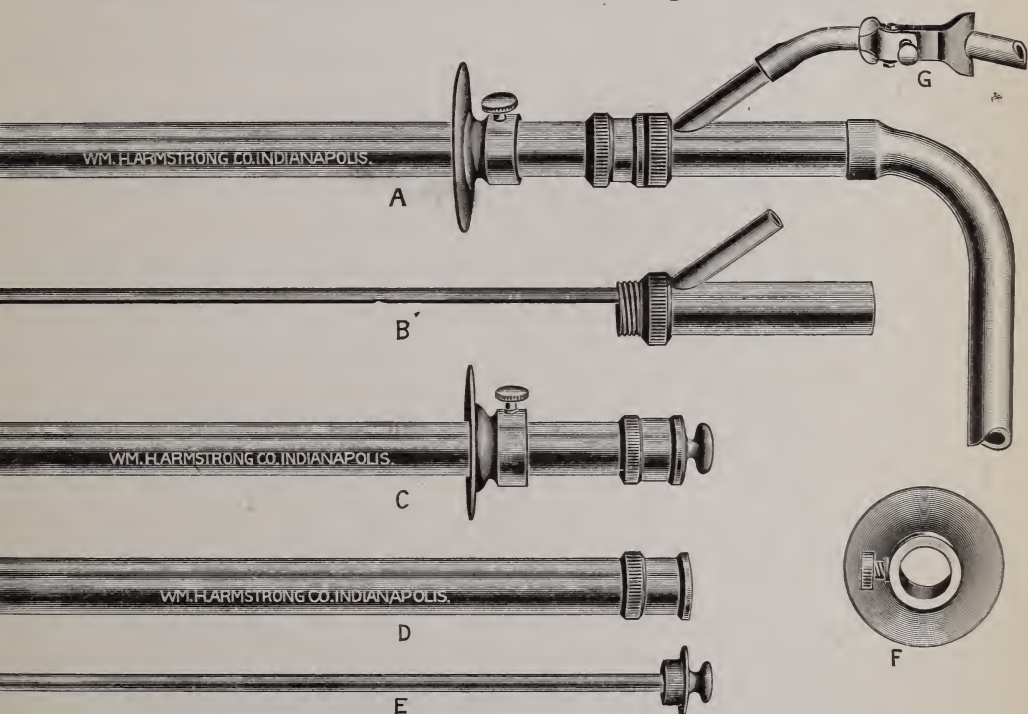
By reference to the illustration the instrument will be seen to consist of two parts, i. e., the tube proper or out-flow tube and an in-flow tube.

The tube proper resembles a large endoscopic tube (Fig. c) and is 40F. in size and 17 cm. long. It is fitted with a disc (Fig. f) 4 cm. in diameter (the position of which may be changed by loosening the thumb-screw on its sleeve) and an obturator (Fig. e) to facilitate its introduction into the bladder through a perineal incision.

The in-flow tube (Fig. b) consists of a section of metal tubing the same size as the tube proper and 6 cm. long, with a small tube passing obliquely through its wall and becoming flattened within the lumen of the larger tube and extends, when the two sections are screwed together (Fig. a), to a distance of 1 cm. beyond the tube proper and its opening is on the outer side, like the eye of a catheter.

The tube is introduced into the bladder with the obturator in position. The obturator is withdrawn and the in-flow tube inserted and screwed up tight. The depth of the tube is regulated by the movable disc, and with a few layers of gauze between the disc and the wound it is held in position with a T binder. A fountain irrigator is connected to the in-flow and a large rubber tube three or four feet long is connected with the out-flow to carry the drainage to a receptacle which is usually placed under the foot of the bed. The amount of in-flow may be regulated with the thumb-screw on the clasp-cut-off, or by raising or lowering the supply tank.

Should the tube become displaced accidentally or be removed intentionally it may be reinserted without difficulty by unscrewing the in-flow tube, and with the obturator in place introduced into the bladder and connected up as before. The large tube provides for a free out-flow from the bladder and with the inflowing stream of small size there is little likelihood of the bladder becoming distended and continuous irrigation may be kept up for any number of hours desired. At first when the hemorrhage is most marked the flow can be made free by elevating the supply tank to a height of two or three feet above the bed. As the hemorrhage decreases and



the necessity for free flushing is not so urgent the supply tank can be lowered to four or six inches above the bed, when the syphonage from the out-flow will be sufficient to keep the stream running.

When hemorrhage has entirely stopped, and the removal of the metal tube and the insertion of a catheter drainage tube is desired, it is easily accomplished by unscrewing the connec-

tion and removing the in-flow tube. A 26 or 27F. catheter can then be inserted into the bladder through the metal tube and the latter gently pulled out over the catheter, leaving it in proper position with no displacement of gauze packing.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

RADICAL OPERATION FOR TUBERCULOSIS OF THE MALE GENITAL ORGANS

By GEORGE S. WHITESIDE, M. D., of Portland, Oregon.

AFTER considerable experience with tubercle of the genital organs, I have been gradually led to believe operation a most valuable preliminary aid to other treatment in a large percentage of cases, particularly the advanced ones. I have also found that the most successful cases were the ones in which the most radical removal of diseased tissue had been performed. My cases have, perhaps, been too few to draw final conclusions from, but believing they teach some valuable facts which, although not new, may be looked at from a little different point of view, I will briefly report a few cases.

Mr. H. K., 38 years old, single, consulted me in October, 1902, and gave the following history. In 1893 Dr. Willy Meyer did left orchidectomy for tubercle of the epididymis. In 1894 Dr. Bolton Bangs did combined suprapubic and perineal curettage of the bladder for tubercle. Since then he has spent two years in Arizona and six years in New York. Has gained 10 lbs. in weight. Feels well. Has had no symptoms for seven years. Wants to get married and so consults me. Cystoscopy shows a perfectly normal bladder except for scar tissue at the fundus where the suprapubic wound was and some small scars where ulcers were curetted. Physical examination of chest, abdomen, and other testicle and the prostate discovers no disease. Urine examination negative. I believe this man to be entirely well. It will be noticed that the first operation (removal of the testicle) did not eradicate the disease. A second operation a year later was necessary.

I have operated on seven cases in all by removal of the diseased testicle, and in three others the operation, although more

extensive was still far from complete, and all but one have had recrudescence of the disease within a few months. Consequently more radical measures seem to me to be advisable. The literature on the subject does not lead one to expect involvement of the testicle, seminal vesicles, and prostate in every case of tuberculous epididymitis, but experience has proved to me that these organs seldom escape infection. So if the epididymis alone or even the epididymis and testicle are removed, dangerous foci of disease remain. I do not believe bladder infection so great a menace. The following case illustrates this point and the method of operation which has given me best results.

Feb. 15th, 1908, Y. A., 34 years old, single, was sent to me at the Medical School free clinic. For two years he had suffered from frequent urination and gradually increasing pain in the bladder. Two months ago the right epididymis began to swell. Not painful. Now the testicle is involved in a large indurated mass the size of a goose egg. On the other side the scrotal integument is slightly reddened and a feeling of deep fluctuation is evident. Rectal examination shows the cord hard and as large as one's finger, prostate contains nodules on the right, and right seminal vesicle is indurated. Bladder capacity only 30 c. c. Tubercle bacilli in the urine. Dr. Yenney pronounced the lungs sound. Operation Feb. 24th at St. Vincent's Hospital. The right testicle removed through an incision extending into the inguinal region in the usual way. The cord was then freed from the surrounding tissues as far into the inguinal canal as possible. There it was clamped and cut off. Then the patient was placed in the lithotomy position and a semi-lunar incision with its convexity anteriorly was made extending between the tuber ischii. After dividing the central tendon of the perineum the rectum was pushed backward and by blunt dissection, following the plane of the recto-vesical fascia, a deep pyramidal shaped wound was made which gave easy access to the prostate and seminal vesicles. By pushing the finger up to the apex of this deep wound and by pushing downward and backward on the forceps, which had been previously clamped to the cut end of the vas deferens in the inguinal canal, it was found possible to push this clamp through into the perineal wound carrying the cord with it. By removing

this anterior clamp and replacing it with another through the perineal wound, it was found possible to remove the entire spermatic cord with the seminal vesicle on the right side and the right lateral lobe of the prostate. Having thus excised all the tuberculous tissue which it was possible to reach, the anterior wound was closed without drainage and the perineal one was closed, leaving a small amount of gauze packing for drainage. This was the first time that I had ever performed this operation and, so far as I know, it was an original procedure. The time of operation was almost three hours, owing chiefly to the difficulties attendant upon the removal of the seminal vesicle at the bottom of a deep wound. The patient was returned to bed in good condition, the gauze was removed after 24 hours from the perineal wound. Convalescence was uninterrupted, the patient being up and about on the 10th day. On March 17th the patient was in good condition but complained that he still suffered from vesical tenesmus. He was given tuberculin, hypodermically, as prepared by Mulford. The day after this injection the vesical symptoms were very much better. Frequency was less and pain relieved. On the 21st .20 c. c. were given with the corresponding good result. This was repeated on the 27th and 30th. By this time urination was much less frequent and the pain had entirely disappeared. The patient was then discharged relieved and went to Huntington, Oregon. There he came under the care of Dr. Spencer who gave him two injections in the month of April, dosage not stated. In May, '08, the patient wrote to me saying that he felt entirely well, had gained weight and was working in a sheep camp not far from Huntington. Since he had not felt well enough to do any work for more than a year, I consider the result very gratifying. In this case it was possible to remove all the infected tissue without breaking it up and so disseminating tubercle bacilli in the wound. Consequently, healing was by first intention. I believe this of great importance, but I have not always found it practicable. The bladder infection (in this case I believe it is fair to infer that there was such infection) seems to quiet down and get well under the use of tuberculin whether operation has been done or not. The following case illustrates this point.

October 9th, 1908, Miss F. S. was referred to me for an acute exacerbation of vesical tuberculosis. Two years before she had had a similar attack but not so severe as this one. One and one-half years ago she was operated upon for tubercular pyosalpinx and very extensive signs of tubercle were found in the general abdominal cavity. The present bladder attack began three weeks before I saw her. Symptoms, frequency, pain and hæmaturia. Many tubercle bacilli found in the urine. I gave her tuberculin and after two doses the pain and frequency were very much improved. Whereas, when I first saw her, she passed bloody urine every 20 minutes day and night, a week after tuberculin treatment was begun she slept continuously 12 hours without an opiate. Since then she has been constantly under my care. At the present time (April 10th, '09) there are no bacilli to be found in the urine and no symptoms referred to the bladder.

It has been my experience that no form of tubercular infection responds so promptly and so satisfactorily to tuberculin treatment as bladder tuberculosis. Consequently, I do not look upon a bladder infection as of much importance in cases of genital tubercle. On the other hand it may be made use of as an index or guide to treatment. If the dose of tuberculin is too large the bladder will immediately give notice by pain and frequency. If the dose is a proper one the bladder is immediately relieved. When frequency and pain begin to grow more prominent, it is a reliable guide that another tuberculin injection should be given. For this reason a mild bladder infection is a help rather than otherwise.

When, in the operation above described, tubercular tissue is broken up and tubercular material spread in the wound, a post operative sinus will surely result. The two following cases illustrate this point.

In March, 1908, A. D., 28, single, consulted me and related the following history. August, 1907, contracted a gonorrhea. Treated by a doctor in Lewiston, Idaho. The discharge stopped in six weeks. In January, 1908, received a blow on the testicle. To this injury he refers the swelling of epididymis. Examination shows well developed and nourished man. Lungs, heart and

abdomen negative. Right epididymis and testicle involved in a tumor almost the size of one's fist. Over the posterior aspect of this tumor the skin is reddened and a fluctuating spot toward the centre of the hyperæmic area shows pus very near the surface. The spermatic cord, seminal vesicle and prostate involved on the right. Symptoms of bladder involvement very slight. No cystoscopic examination. Urine acid. Not much sediment. Small amount of pus. Tubercle bacilli not found. Operation March 12th, 1908. Technic similar to that described for last case. However in this man the perineal part of the operation was much more difficult because his pelvic outlet was very narrow and the wound between the bladder and the rectum very deep. Also in this case venous hemorrhage was troublesome. After removal of the testicle with the cord and after removal of the structures at the base of the bladder it was found necessary to pack the perineal wound with gauze to stop the oozing. The tumor, after removal, was cut and the epididymis found to be merely a shell of thickened tissue forming the walls of an abscess. Other small abscesses were scattered through the tumor and in the seminal vesicle and portion of prostate removed. Time of operation three hours. Patient returned to bed in good condition. Forty-eight hours later the gauze packing was removed from the perineal wound. The next day it was evident that injury, either at time of operation or from pressure of the gauze packing, had caused a fistula into the rectum. April 20th, five weeks after operation, patient left the hospital but the fistula in ano remained patent.

April 10th. The first tuberculin injection of .08 c. c. Koch's O. T. (Mulford) Serial dilution No. 1 given. This did not cause reaction. Three injections were given in April. Patient not seen between May 1st and May 20th. Two injections given in May on the 20th and 27th. The last injection .20 c. c. Same tuberculin was given. This dose caused a rise of temperature and the usual signs of overdose. Consequently, I thought best to omit further injections until the fever had subsided.

June 11th. The fistula in ano not having healed at all, the patient was given ether and the fistula cut through the sphincter into the rectum.

July 30th. The wound of this second operation almost but not quite healed.

Aug. 10th. Tuberculin injections resumed. .05 c. c. same solution given.

Aug. 20th. .10 c. c. same.

Sept. 1st. .20 c. c. same. Note on this date is that patient has gained 10 pounds in weight, fistula entirely healed, feels strong and well. Is doing heavy laboring work.

Oct. 5th. Has gained more weight. .20 c. c. same solution given without reaction or untoward result. Feels perfectly well. All demonstrable evidence of disease has disappeared.

In April, 1908, W. R., 37, single, came to me with what appeared to be a tubercular nodule in the left epididymis. No other evidence of disease. I advised operation but he declined it. In February, '09, he returned. The testicle and epididymis were then both involved in a mass as large as one's fist. There had been an abscess and a sinus remained. The vas deferens was hard and enlarged. The prostate and seminal vesicles showed involvement. A slight infection of the apex of the right lung rendered the prognosis more doubtful but operation was advised and accepted. The operation went smoothly until I attempted to poke the vas deferens through from the anterior wound to the posterior one. The vas broke off. Prolonged search failed to find a piece about two inches long. Convalescence was uneventful but there remains at present writing (April 10, 1909) a small fistula leading downward in the anterior scar and a similar one upward in the posterior one. These approach each other but do not connect. Probably a secondary operation will have to be done to close these fistulae.

This illustrates the danger of continuing infection after operation if any tuberculous material is left. I believe this very important. I have given enough cases for illustration. The recital of more would be tedious. I have now operated on 12 in all by this method. Six appear to be well. All are alive. I have had no mortality as yet. The six later cases are too recent to report at this time. Even the first six cases are really recent ones. Consequently, this paper is necessarily a preliminary report. I believe at least 10 years should elapse without recurrence

before complete cure is claimed. Even an early report is valuable. Thoughtful surgeons will not accept it as final but it invites criticism and crystallizes our knowledge on the subject as far as it goes. I have, therefore, presented this paper for your critical consideration.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

VESICAL CALCULUS, REMOVED BY REPEATED CRUSHING (TWO CASES)

By G. K. SWINBURNE, M. D., of New York.

I SIMPLY have two specimens to show that I thought might prove of interest because of the manner in which the litholapaxy was done, both of these cases being done under local anæsthesia. The two larger bottles are from one case, and the eleven smaller ones are from the second.

The first case was a man fifty-nine years of age, who nine years before had a nephrotomy for stone in the kidney. His recent trouble began about a month before he appeared at the dispensary. By the cystoscope it proved to be an oxalate stone, and I thought it might be easily removed by the lithotrite and by local anæsthesia, or even without anæsthesia. The patient was rather nervous after the operation began, and I stopped as soon as I felt that I had done enough. I thought I was going to get it all out, but, as you can see, there was one fragment left behind which was removed a week later. The patient felt immediate relief from his symptoms after the first operation, and was so pleased that he submitted to the second operation for the removal of the balance without any difficulty. He was cystoscoped two weeks later. After litholapaxy I generally wait two weeks, unless I feel that the case will stand it earlier. Nothing was found. The bladder was perfectly clear. That man has had no symptoms since. He comes to the dispensary occasionally to see me. That stone was very easily removed. It came into the jaws of the lithotrite without any difficulty at all. It could have been removed at one sitting if I had tried.

The other case was a little different. The man was sixty-five years old, and gave no previous history. For a year and a

half he had had his symptoms. He had suffered with great frequency and pain, but he refused to go into the hospital for operation. So I thought I would try to see what could be done with litholapaxy at the dispensary. He had a little residual urine, and in trying to get the stone with the lithotrite the stone would not go into the jaws at all. I had to turn the beak to find the stone and then open the jaws, close on the stone, turn back, and crush. The result was that these manipulations were a little more painful than where you simply open the jaws and have the stone slide in. For that reason, the first two or three times I simply caught the stone and cracked it and washed out what I had broken up. These operations were done at intervals of a week apart, and sometimes I would cystoscope him to see how large the stone was, and it seemed as if it was always about the same size. I wondered at that time whether the reason the stone did not come into the instrument was that the stone was in a diverticulum and that we were catching simply a projection from the diverticulum. But the cystoscope did not seem to reveal any such condition, and after a while, after these repeated operations, I came to know just where the stone was going to lie and could catch it very easily. I would simply catch the stone, give it one crack, take out the instrument, wash out, and after a while I removed all the stone. The patient has been completely relieved. In fact, after half the stone was removed he felt very much better. He did not mind the insertion of the lithotrite at all after the first two or three weeks. He had no reaction whatever. His urine cleared after the stone was completely removed. From time to time he has a clouding up of his urine, and I intend to have him X-rayed, because I have a feeling there is a stone in some other part of the urinary tract. I thought that it was possibly a case of prostatic obstruction, but since the removal of the stone he has only about a half a drachm of residual urine.

AN INTERESTING CASE OF RETENTION OF URINE

By DR. FRANZ WEISZ, Budapest.

WHEN, in cases of retention of urine, in spite of careful local examination, we find a negative condition, we must consider it a nervous retention, especially if the desire to urinate is very slight and the bladder expressible. These symptoms must generally be taken to indicate spinal disease (tabes, paralysis, myelitis), with the exception of occasional severely diseased prostates, since it is impossible to express the bladder manually in a normal human being; this can only be done under pathological conditions.

Experience has also taught that the nervous retention is relatively rarely so great as when occasioned by local obstructions, and that it also seldom causes great pain; probably for the reason that the lack of tone in the spincter is in favor of incontinence, and thus the bladder is soon relieved.

Paralysis of the bladder also causes retention of the urine and is to be found where the sensorium is affected in imbeciles and where consciousness is unimpaired. Paralysis of the bladder occurs in cases of affected sensorium, conditions of intense suffering, coma, cerebral hemorrhage, tumor, meningitis, extreme intoxication (alcohol, chloroform), complete imbecility, and especially in the last stage of progressive paralysis. In all these conditions there is generally, from time to time, a reflex discharge of urine, analagous to that to be observed in early childhood.

When the sensorium is not affected, the retention makes itself apparent in milder attacks by, 1. The inability of the patient to void the urine at once, he being compelled to wait a considerable time before the first drop appears (retardation); 2. That the ejected stream is not normal; for example: thin in caliber, slight projection, frequent stoppage; 3. That the patient, in order to urinate, must assist himself unnaturally (by pressure on the abdomen), or assume unnatural positions (jumping, squatting, supporting, etc.); 4. That entire

retention of the urine ensues and the patients, in spite of an acute desire to urinate, can only do so by means of the catheter. The retention may be complicated by the fact that the patients, generally tabetics, may not have a distinct desire to urinate, believing they have completed urination, and when the catheter is applied they are astonished at the quantity of urine withdrawn. Not infrequently the retention is combined with incontinence. This incontinence may result in a flow of the urine; in adults automatically if the sensorium is not clear, in cerebral diseases, in paralysis of the detrusor muscles; especially with tabetics and those affected with spinal disease it may happen that small quantities of urine are ejected in an abnormally strong stream at short intervals.

A high degree of retention in cases of atony of the sphincter has been found in conditions of "bladder-expressibility." Such patients it has been found possible to, at times, completely relieve the retention by means of pressure on the abdomen with both hands.

Of spinal disease, tabes and tabo paralysis, and of nervous affections, neurasthenia and hysteria, lead most frequently to complete retention. The desire to urinate is often lacking; sometimes there are simply spasms of the sphincter. In neurasthenia the complaints are frequently only of slightly difficult urination, somewhat retarded flow, slight symptoms of incontinence, slight after dripping, and occasionally an excessive pain in the pars prostatica at the contact with the catheter. The neurasthenic retention must not be mistaken for the pseudo-retention, which the French call *bégalement urinaire* (*Harnstottern*), in which the patients cannot urinate in the presence of others, or for fear of being taken by surprise, in spite of the full condition of the bladder and a strong desire to relieve it.

In hysteria we find pollakuria, pain in the bladder, very slight, rarely severe signs of incontinence, and more frequently than with neurasthenia patients, total retention. This retention may frequently attain a serious degree and is often combined with a lessened desire to urinate. Objectively one finds sensitiveness disturbances, diminished to pain instruments and

to the Faradic current, and only rarely exaggerated sensitivity.

Taking into consideration the negative condition, or the very slight local foundation on which to make a diagnosis, it is advisable to base this upon a combination with other symptoms.

As far as therapeutics are concerned the fear of a possible operation sometimes brings relief (Frank-Hochwart, Zuckerkandl-Hacksfell); in other cases this is not sufficient and only an operation will effect a cure.

I will briefly relate a case of this kind:

Mrs. G. E., a patient thirty-nine years of age, the mother of five children, sent for me two years ago during the night. She was suffering greatly and complained of not having been able to urinate during the past ten hours, in spite of a great desire to do so. Examination showed the bladder to be completely filled. I catheterized the patient with her own catheter, which she constantly kept on hand for this purpose, as she had on various occasions catheterized herself. The catheter was readily inserted into the bladder, and about 200 ccm. of urine drawn. I then washed out the bladder with boric acid and left, intending to make another and more thorough examination by daylight.

While making this examination the following day, the patient told me that several physicians had come to the conclusion that there was a polyp in the urethra, and had recommended its removal by means of an operation.

I found on the outer lips of the pudenda and in the vagina a few condylomata acuminata, an endometritis cervicalis with a slight erosion and a considerable amount of secretion. The meatus of the urethra is arched forward, the lower border prolapsed, the endoscope shows no sign of a polyp in the urethra, yet the mucous membrane is red, hyperemic and moderately hypertrophied.

With the cystoscope I found the trigone velvety and hyperemic, the mucous membrane of the bladder for the most part smooth and glossy, moderately trabeculated toward the vertex, with perfectly functioning ureteral openings.

As the patient also showed other symptoms of hysteria, it was clear to me that the retention was of hysterical origin, but, in view of the fact that the patient was, so to speak, already imbued with the idea that a cure could only be effected by means of an operation, I shortly afterward performed a slight one which consisted of removing the condylomata acuminata with a sharp-edged spoon, and inserting a curette into the urethra, as if I had removed a polyp therefrom. Since that time the patient is cured, and although more than two years have passed, there has been no further retention.

Although in my case there was no cystitis, cystitis may be present in such cases of retention, and sometimes becomes very severe. This is caused by bacteria which find a nutritious medium in the retained urine.

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SEXUAL INTERCOURSE: A PHYSIOLOGICAL INTERPRETATION

By LEO JACOBI, M. D., New York.

OBJECTIVELY considered, the physical phenomena exhibited in the sexual act and its preliminaries, resolve themselves into a series of graduated contacts.

To begin with, more or less extensive areas of skin surface are brought together, some possessing inferior degrees of sensitiveness, others highly sensitive. A more intimate form of contact is seen when skin comes in touch with mucous membrane, as in kissing the hand or cheek. A further advance is shown by the approximation of mucous membrane and mucous membrane, as when the lips are pressed together. The tongue may participate in the passionate kiss, increasing the mucous contact-area. Finally, the extensive and sensitive mucous surfaces of the genital organs, coming together, achieve the most complete union of the two bodies.

In all these stages and grades of intimacy, there is an obvious tendency to attain as extensive and as close a contact as conditions will permit—witness the pressure and stroking

action of the hand, the suction of the kissing lips, the rhythmical friction of the genital surfaces.

Corresponding to the degrees of sensitiveness exhibited by the areas brought in touch with each other, a graduated series of contacts can be established, beginning with skin to skin, thence passing to skin and mucous membrane, and culminating in the contact of mucosa with mucosa. Each variety can be further subdivided in conformity to the same principle. The most exquisitely sensitive mucous membranes are undoubtedly those of the genital organs, and, accordingly, in their contact the sexual *rapprochement* finds its consummation.

This gradation of contacts, which is here interpreted seductively, agrees completely with the intuitive or empirical descriptions of gradually developing sexual attraction as embodied in works of fiction. Depicting the inception and growth of love, novelists uniformly show us how the successive stages of intimacy find their expression in corresponding bodily contacts, from the timid touch of a hand to the impetuous embrace and the passionate kiss. Almost any novel abounds in illustrations, though special reference may be made to the works of Thomas Hardy and George Meredith, who appear to dwell on this detail *con amore*, devoting lengthy passages to the subtleties of a touch or a kiss.

It may here be remarked, in passing, that our point of view invests the familiar kiss with far greater dignity than do those who look upon osculation as merely a conventional symbol, or, still worse, maintain that kissing is no more than a reminiscence of lip-movement executed on the maternal breast!

The reference to novelists may fitly be supplemented by a quotation from a brilliant essayist and satirist, who cynically remarks of love as he saw it in the society of his time: "*L'amour n'est que le contact de deux épidermes.*" (Chamfort).

This aphorism, while it states an essential condition to the consummation of love, errs by ignoring the ultimate purpose of the "contact of two skins." What this purpose appears to be we shall presently discover.

We have analyzed the interaction of two bodies during

the sexual approach, and found a certain unifying principle underlying the seemingly irregular proceedings. Let us now turn to the subjective side of the phenomenon and ask, what feelings or sensations correspond to the elaborately intimate contact achieved in the sexual union? The answer is unequivocal: the participants experience a thrill, or shudder, or shock, as if a discharge of some subtle force passed between them.

Again laying the novelists under contribution for evidence, we find them speaking of "electric" or "galvanic" explosions and discharges. A few references will suffice.

In "The Laodicean," Hardy dwells on the subtle electric exchange which took place when Somerset accidentally touched the heroine's hand in the dark vault of the castle.

Meredith has the following passage in "The Ordeal of Richard Feverel": "All at once an alarming delicious shudder went through her frame. From him to her it coursed, and back from her to him. Forward and back love's *electric messenger* rushed from heart to heart."

In a novel by a smaller author there occurs this description of a kiss: "The kiss seemed to send a shock all through her, paralyzing her, rooting her to the ground, as the touch of an *electric battery*."

Finally, in a scientific work devoted to the subject of sex, the author speaks of "the *thrilling galvanic shock* which constitutes the supremest sexual delight."

Now, what is the significance of all this?

Both the objective and the subjective evidence converge toward the interpretation of the sexual act as a nervous discharge resulting from the approximation of two highly charged bodies. The large areas of contact may be likened to electrodes, the moist mucous surfaces are good conductors, and the conical glans and cervix possibly facilitate the closure of the circuit.

The analogy with electric phenomena is permissible owing to the close relationship acknowledged to exist between electricity and nerve-force in their manifestations. However, the exact relation of these forces to each other need not be assumed

as essential to our argument. It is sufficient for us that there is a nerve-force, and that it behaves in many ways like electricity, thus allowing us to use the latter for illustrative purposes.

An interesting avenue of speculation is opened at this juncture in regard to the quantitative or qualitative differences in the nervous constitution of two bodies, male and female, which underly and account for their peculiar attraction toward each other, or repulsion from each other, as the case may be. Possibly homosexual tendencies are in the last analysis traceable to some such variations in quantity or kind of nervous equipment.

It is noteworthy, as being in harmony with our point of view, that homosexuality, once the abnormal attraction is there, follows the same lines of action for consummating the depraved desire as we see in the normal instinct. There is the same tendency to achieve the closest and most extensive contact possible to the participants, preferably bringing large areas of mucous surfaces together. The original desire is abnormal; the means of satisfying it are logically chosen. The conception of the sexual act enunciated above sheds light on several other questions. It accounts, for example, for the unsatisfactory nature of intercourse in the absence of love; it helps us to understand the inadequacy of preventive and prophylactic measures directed against conception and disease; it reveals the inherent shortcomings of artificial erotism.

The sexual act is but one of the many marvelous adjustments of means to ends in the human body, and it was my desire to expose the details of this adjustment.

REBELLIOUS BACTERIURIA

By JOHN T. GERAGHTY, M. D.

BACTERIURIA is a condition which was first described in 1881 by Roberts.¹ He reported a case in which his attention was attracted by the appearance of the freshly voided urine. This presented a peculiar opalescence and exhaled a disagreeable odor. On microscopic examination the peculiar appearance was found to be due entirely to the presence of enormous numbers of bacteria both cocci and bacilli. A few years later a case was reported by Schottelius and Reinhold,² and in 1888 a work of Ultzman³ was published in which a chapter was devoted to bacteriuria.

Increasing numbers of observations have been reported and the condition studied by many workers particularly Rovsing,⁴ Krogius⁵ and Janet.⁶ To-day bacteriuria is a well recognized affection and one not infrequently encountered, and is without doubt often mistaken for mild cystitis. The bacteriuria occurring during or following typhoid fever and due to the bacillus typhosus is a form of the disease long recognized and one with which the profession is most familiar.

Bacteriuria is really a remarkable condition, and one at first sight difficult to understand, for it apparently upsets our ideas of bacterial invasion which are generally associated with inflammatory phenomena. It is difficult to reconcile the presence of enormous numbers of bacteria in the bladder urine persisting for months and even years without causing an inflammatory reaction on the part of the vesical mucosa.

There is some difference of opinion regarding the application of the term. Predohl⁷ would limit its application to those cases in which a healthy individual without any clinical evidence of inflammation in the urinary tract and without recognizable cause voids urine which contains in its fresh state bacteria. He would not include those cases in which a previous inflammation or diseased focus existed. According to Krogius the condition is characterized by the presence of enormous numbers of bacteria in the freshly voided urine and by the absence of any pronounced

symptoms of inflammation of the urinary tract. He does not believe the term should be applied to cases in which it is a phenomenon secondary to an infectious nephritis or part of a general infection. Rovsing distinguishes two types of cases, one in which the urine is absolutely free from pus, and another in which a few pus cells are present, but the peculiar cloudiness of the urine is due to bacteria. In his opinion it is most infrequently of renal origin.

Bacteriuria in reality represents an infection different only in degree from ordinary cystitis. In one the infection is present without any inflammatory reaction on the part of the bladder wall, while in the other we have the infecting agent in the urine plus involvement of the vesical mucosa. As a rule the disease is one which yields readily to treatment, but occasionally it may be most intractable and resist all efforts to dislodge the invading organisms. The series of cases reported below are of the intractable type and incurable as far as all our efforts have been concerned. In two cases the bacteriuria was of renal origin, and in two cases secondary to an infection of the prostatic urethra, prostate and seminal vesicles.

CASE 1. Alkaline bacteriuria of renal origin. Chronic prostatitis. Intermittent phosphaturia. Organism, *staphylococcus albus*.

R. M., aged twenty-seven. Single. He was seen for the first time in September, 1907, complaining of cloudy urine and intermittent attacks of burning in the urethra and frequency of urination. Six years previously he had contracted gonorrhœa following which he had a discharge which persisted for some months, but finally ceased without any special treatment. Seven years ago he had a sore on his penis but this was not followed by any secondaries. Four years ago he noticed that his urine had become cloudy but this was attended with no special symptoms at that time. This cloudiness of the urine has been persistent and at intervals he has suffered from slight attacks of frequency and severe burning in the urethra on urination. During these exacerbations considerable quantities of a white sand-like substance have always been passed. In the interval between these attacks when this white sand-like material is not excreted he is comfortable, and entirely free from symptoms. The general nutrition has al-

ways been maintained and he has never had any pain in the region of the kidneys or along the course of the ureters. He was first seen during one of these attacks above noted. On physical examination his chest and abdomen were normal. There was no tenderness over the kidneys or ureters. The urine when voided in three glasses was quite cloudy in all of them and a white granular sediment settled to the bottom. The urine was slightly but definitely alkaline and negative for albumin and sugar. The addition of acetic acid caused some slight clearing of the urine, but it still remained definitely hazy. The microscopic examination of the precipitate which was composed of small whitish granular masses showed that it was a mixture of amorphous and triple phosphates with large masses of a gram staining coccus. With the exception of the first glass which contained a few pus cells the urine was entirely free from pus.

Cystoscopic examination of the bladder showed no signs of inflammation, the mucosa being perfectly normal.

On rectal examination the prostate was slightly enlarged and somewhat indurated in areas, while the prostatic secretion contained a fair number of pus cells, but also numerous normal elements. The seminal vesicles were small and soft. He was instructed to drink large quantities of water and was given thirty grains of urotropin a day. Within a short time the phosphaturia disappeared, but a distinct haziness of the urine still remained. It was then decided to catheterize both ureters to determine if the organisms were not being excreted from the kidneys. Catheters were introduced about 4 cm. on each side, and the first 5 cc. collected was discarded. About 10 cc. were then collected from each ureter. The urine from both ureters was apparently clear with the exception of small floating particles. On being centrifuged and examined microscopically it was found that these small grayish masses were clumps of cocci, but no leucocytes were observed. The same condition was present in the urine from both kidneys and the reaction of each was slightly acid. Cultures from each catheterized specimen, as well as from the bladder urine, showed a pure growth of staphylococcus albus. Urotropin was then increased to sixty grains a day, and for a short time the urine became almost entirely clear, but the cloudiness soon recurred notwithstanding the large doses of urotropin.

Subsequently both ureters were catheterized and the pelvis of each kidney was washed with a 1% solution of protargol. This procedure was repeated several times at weekly intervals, but as no improvement was noted following pelvic lavage it was discontinued. In January, 1908, the staphylococcus albus was again isolated from the urine in pure culture and a vaccine prepared. The vaccine was made from an 18 hour agar culture. He has been given weekly injections of 200 to 400 million organisms during a period of three months, but the vaccine has apparently not had the slightest effect. At the present time the infection is still present. While taking urotropin he is comfortable and free from phosphaturia, but on discontinuing it for any length of time the phosphaturia returns with its uncomfortable symptoms.

CASE 2. Acid bacteriuria of renal origin. Acute locomotor ataxia. Organism, *B. coli communis*. P. S., aged twenty-four. Married.

He was first seen in August, 1907, complaining of slight pain on urination, some frequency and considerable difficulty in starting the flow. He gives a history of gonorrhœa six years ago which was of short duration. About three years ago he had a sore on the penis, but this was not followed by any secondaries and he has never taken any treatment for syphilis. One year ago, however, he began to develop symptoms of locomotor ataxia and this has developed very rapidly until at present he is hardly able to walk. Six months previously he had an attack of dysentery which lasted five weeks and during this attack noticed for the first time cloudiness of the urine together with some pain and frequency. For almost a year he has had more or less difficulty in starting the flow, due unquestionably to his locomotor ataxia.

Examination: Patient is a frail, sickly looking young man with well developed signs of locomotor ataxia. Chest and abdomen negative. No tenderness or pain over kidneys. External genitalia normal.

On rectal examination the prostate was small, soft and apparently about normal. Microscopically the prostatic secretion showed a few pus cells, but for the most part it was composed of normal elements. The urine voided in three glasses had a peculiar haziness characteristic of bacteriuria. Microscopic ex-

amination showed a few pus cells in the first glass, while the last glass contained no pus cells, but an enormous number of gram negative bacilli. The urine was acid and contained no sugar or albumin. The urethra was negative for stricture and inflammatory indurations. A catheter was readily passed and withdrew no residual urine and the bladder capacity was normal. Careful inspection of the bladder mucosa through the cystoscope revealed nothing abnormal and with the exception of a slight reddening about both ureteral orifices the examination was negative. He was instructed to drink large quantities of water, to take 40 grains of urotropin a day and was given daily intravesical irrigations of bichloride 1 to 60,000. The pain and frequency of urination almost immediately disappeared and there was distinct but not entire clearing of the urine. As long as the above treatment was continued the urine remained comparatively clear, but on discontinuing urotropin and water it promptly returned to its first condition. It was finally decided to catheterize the ureters, and catheters were introduced about 4 cm. on each side. The right ureter functionated copiously, but for some reason or other only a few cc. were obtained from the left side during a period of fifteen minutes. During this period about 20 cc. were collected from the right ureter, the first 5 cc. being discarded and only the last portion saved for examination. This last portion of urine was apparently clear to the naked eye, but numerous small particles could be seen. On microscopic examination, however, these small masses were found to be clumps of bacilli, a condition similar to Case 1. As only a few cc. had been collected from the left ureter microscopic study was not considered of any value on account of the probability of the first portion containing bacteria from the end of the catheter, which had necessarily come in contact with the vesical mucosa. A culture from the urine gave a pure growth of coli communis. A vaccine was then prepared from an 18 agar culture of his own organism and the urotropin was discontinued. Injections of 100 to 200 million bacilli were then given subcutaneously in the upper arm at weekly intervals. The injections have caused no local nor systemic reaction. He has received up to the present time eight injections, and during the last month a decided and progressive improvement has taken place. At present although taking no urotropin

the urine is comparatively clear, but microscopic examination still shows the presence of bacilli.

CASE 3. Bacteriuria secondary to posterior urethritis and chronic prostatitis. Organisms, staphylococcus albus and bacillus coli communis. A. M., aged thirty-two. Single.

He was seen for the first time in July, 1907, complaining of a "bearing down pain" in the rectum, and an aching at the neck of the bladder a few minutes after urination. He contracted gonorrhœa for the first time ten years ago and since then has had the disease several times, the last attack being three years ago. During one attack five years ago he developed a swelling of the right epididymis. Two years ago he contracted syphilis for which he has conscientiously taken treatment. His present symptoms date back eight years and have been much more severe than at present. He gets up once or twice at night to void and urinates during the day about every three hours. He has no hesitation or difficulty in voiding and his stream is full and large. Sexual powers are good, but ejaculation is precocious. The ache at the neck of the bladder soon after voiding and the "bearing down pain" in the rectum were the only symptoms for which he sought relief.

Examination: Patient was a rather neurotic looking man, but in good physical condition. His chest and abdomen were negative. The external genitalia were normal and there was no urethral discharge. The urine when voided in three glasses showed slight cloudiness in the first glass, while the second and third glasses were clear.

On rectal examination the prostate was somewhat enlarged and the consistency of the gland as a whole was quite firm. The surface was rather smooth. There were no periprostatic adhesions. The prostatic secretion was rather scanty and almost entirely composed of pus cells.

He was treated by prostatic massage, dilatations of the posterior urethra, etc., for several weeks when it was noted that the urine had become slightly hazy, but no urinary irritability had appeared. Microscopic examination showed that the cloudiness was due to a coccus. Large doses of urotropin were immediately ordered, but had only a partial effect upon the coc-

ciuria. Cultures from the urine gave a pure growth of staphylococcus albus.

The bladder upon cystoscopic examination appeared perfectly normal. This condition of the urine persisted unchanged for several months, the reaction varying somewhat from a slightly acid to a slightly alkaline condition without the formation of any phosphatic deposits. The urine, however, on standing became in a few hours strongly alkaline with a heavy precipitation of phosphate. The presence of the infection seemed to produce no special symptom.

A few months later a secondary invasion with a bacillus was noted and this in culture proved to be coli communis. The invasion of the colon was productive of no special change except increased cloudiness of urine. Repeated cystoscopic inspection of the mucosa never revealed any evidence of inflammation. Catheterization of both ureters performed while the condition was a pure cocciuria and later after the secondary invasion with the coli communis showed the urine from both kidneys entirely clear and microscopically negative for organisms. Urotropin, instillations of silver nitrate, prostatic massage and vesical irrigations failing to have any effect upon the bacteriuria, vaccines were prepared from his own organisms. He was first given injections of 100 to 300 million staphylococcus albus at weekly intervals during a period of two months without, however, any apparent diminution in the number of staphylococci in the urine. The injections of the staphylococcus vaccine were then discontinued and injections of his own colon bacilli in doses of 100 to 200 million were instituted. He has received so far about five injections, and since the institution of the colon vaccine the number of bacilli has perceptibly decreased in the urine, but no definite conclusion as to the value of this last vaccine can as yet be drawn.

CASE 4. Alkaline bacteriuria. Chronic posterior urethritis, prostatitis, and vesiculitis. Phosphaturia. Organism, staphylococcus albus. S. D., aged thirty. Married.

Admitted July, 1907, complaining of pain in the right kidney region and passage of large quantities of sand accompanied by severe burning pain in the urethra. He contracted gonorrhœa

about five years ago and had a discharge for one year. He dates his symptoms to the attack of gonorrhœa five years ago. His urinary symptoms are intermittent, at times he voids at fairly normal intervals and again has attacks when he micturates as often as five to ten times at night and every few minutes to a half hour during the day. During these exacerbations he has noticed that the urine has increased cloudiness and that considerable quantity of sand is passed. He suffers a great deal from a severe aching pain in the perineum and a constant dull ache over the right kidney region. This pain in the kidney region, however, does not radiate and does not simulate renal colic. The general health has remained good although patient states that his sufferings at times are agonizing.

Examination: Patient is a well nourished man. Chest and abdomen are negative. There is no tenderness over either kidney. External genitalia are normal. There is no urethral discharge. The urine when voided in three glasses is cloudy in all three and a considerable white granular precipitate forms. On addition of acetic acid a large part of the cloudiness disappears, but a distinct haziness still persists. Microscopic examination of the first glass shows a few pus cells, while the third glass shows no pus, but enormous numbers of a gram staining coccus. Precipitate is composed of triple phosphates. The reaction of the urine is alkaline and contains no sugar or albumin.

Rectal examination: The prostate is enlarged, indurated and quite nodular. The induration is especially marked at the upper pole and continuous with enlarged and indurated seminal vesicles. The secretion obtained from the prostate and the seminal vesicles shows a large number of pus cells. The urethra is negative for stricture or areas of induration.

The cystoscopic examination shows that the bladder mucosa is entirely normal as is also the prostatic orifice.

Under prostatic massage, dilatations of the posterior urethra, instillations of silver nitrate, large quantities of water and large doses of urotropin, the patient soon showed marked improvement in his symptoms. While taking large doses of urotropin the urine was usually neutral or slightly alkaline and he was entirely free of the distressing symptoms accompanying the

passing of the sand. The bacteriuria persisting despite all treatment the ureters were catheterized, catheters being introduced about 4 cm. on each side, as in the other cases, the first portion of the urine was discarded, and only the last portions collected were saved for examination. The urine from each side was perfectly clear, had a slightly acid reaction and was negative for organisms or pus cells. Cultures which were made from the bladder urine gave a pure growth of staphylococcus albus. A vaccine was prepared from this as in the other cases and doses from 100 to 300 million were given at weekly intervals during a period of three months. The vaccine, however, has proved absolutely valueless up to the present time, the urine being still slightly hazy, but on discontinuing the urotropin the phosphaturia is not so marked. The pains in the kidney region and in the perineum have entirely disappeared, so that although the infection still persists he is comparatively comfortable.

In the four cases reported some variety of the staphylococcus albus was the offending organism in three cases, being once associated with the bacillus coli communis. In one case the bacillus coli communis was found alone. *B. coli* is apparently the organism which has been found most frequently by the various observers. In the series of cases reported by Rovsing the coli communis was the organism found in every instance. Predohl, as a result of his observations, concluded that bacteriuria was always due to this bacillus. However, bacteriuria due to other organisms, particularly varieties of the staphylococcus, have been observed; while three of the four cases above reported were due to cocci, all varieties of the staphylococcus albus. It is well known that both the staphylococcus albus and the bacillus coli communis may have little or no pathogenicity, and this will explain to a certain extent their growth and persistence in the urinary tract without producing any inflammatory phenomena. We have never seen a case of bacteriuria due to the more pathogenic organisms such as the staphylococcus pyogenes aureus or any of the proteus group, nor have we found any such cases reported. It is very probable that the more pathogenic organisms when they gain a foothold soon produce a reaction on the part of the tissues and the picture becomes an inflam-

matory one. Melchior⁸ has shown that the mere introduction of the proteus of Heuser is sufficient to set up a violent cystitis.

The route of invasion or the passage way through which organisms gain their entrance to the bladder is essentially the same in cystitis and bacteriuria. When the bacteriuria is persistent it is probably essential to have some focus in the urinary tract or neighboring organs which continually pours bacteria into the bladder urine. In cases where an obstruction is present with residual urine this urine may serve as a culture medium, particularly so if it is albuminous. One can readily understand the persistence of the organisms in such cases without any contributing focus. Rovsing has experimentally shown that if a culture of bacteria is introduced into a normal bladder all of the bacteria will be expelled in the course of a few days, so that it would seem necessary in order to explain the persistence of bacteriuria to have some point from which the organisms gain access to the bladder.

In our four cases the condition was of renal origin in two, secondary to chronic posterior urethritis and prostatitis in one, and associated with chronic urethritis, prostatitis and vesiculitis in the other.

In the two cases of renal origin it is probable that a focus of infection of mild grade was present in the superior urinary tract. Just what the nature of the lesion in these cases may be it is impossible to say, as no microscopic study of the renal tissue has been made in cases of this character as far as we have been able to determine. In the cases reported by Krogius and Stenbeck,⁹ in which an autopsy had been performed, the bladder and kidneys were said to be normal in appearance, but unfortunately no microscopic examination of the tissues was made. It seems fairly probable that an apparently healthy kidney can excrete organisms picked up from the general circulation, and in this way give rise to a temporary bacilluria. That organisms, however, in enormous numbers and over a period of months or years could be strained through the kidneys without any focus in the kidney itself is highly improbable.

In the type of cases secondary to infection of the prostatic urethra, prostate and vesicles, the method of invasion of the

urine by the organisms is not inexplicable. The bacteria having gained a foothold in the posterior urethra can readily infect the bladder urine from this point. There is without doubt considerable difference between the resistance to infection offered by the bladder and that offered by the posterior urethra. The posterior urethra is a favorable soil for organisms, while the bladder displays enormous powers of resistance. The explanation of this lies partly in the different character of the epithelium which each possesses. It is probable that the squamous type of cell which forms the superficial layer of bladder epithelium is largely responsible for its resistance to infection. In the anatomical structure of the prostate particularly suited for harboring infection, and in the delicate cylindrical epithelium of the posterior urethra we have a combination peculiarly favorable for the maintenance of a bacterial invasion. There is one form of bacteriuria which has been of considerable interest to us and which occurs as a complication of prostatic massage. It is usually a slight affair and yields promptly to treatment, but occasionally such a happy termination of the complication does not occur.

CASE 3 is an unfortunate example of the rebellious character which it may assume. It is impossible to say in any one case whether the organisms travel directly through the rectal wall into the vesical cavity or from the rectum through the lymphatics to the prostate, subsequently infecting the prostatic urethra, or whether organisms already in the prostate are forced by prostatic massage into the prostatic urethra and from this point infect the urine.

In several cases in our experience in which a careful microscopic study of the stained prostatic secretion failed to reveal any organisms, a bacteriuria shortly afterward developed. Furthermore in a case of nocturnal enuresis in a boy fourteen years of age in whom there was practically no development of the prostate and no sign of inflammation, a mild cystitis developed following a light massage. It is probable in many instances that infection can come directly from the rectal mucosa, possibly the result of some injury to the mucosa or the lymphatics. Wreden¹⁰ considers that direct penetration of bacteria through

the mucous layer of the rectum can occur. His opinion is based upon a series of experiments made on male rabbits. He injured the rectal mucosa by means of an irritant or by scraping off the epithelium, and he found that the rectal lesions provoked a cystitis only when the lesion was situated at the level of the prostate or higher. Lesions lower down had no influence. The organisms found in the bladder were those usually present in the intestines. In certain instances easily recognizable bacteria were introduced into the rectum and these were subsequently recovered in the urine. When he introduced oil or vaseline, the rectum having been denuded of its epithelium, these substances were subsequently discovered in the urine. His experiments were not conclusive as to whether the infection was through the medium of the prostate or directly from the rectum to the bladder.

Bacteriological researches of Notthaft¹¹ (Youngs, Stevens and myself)¹² have shown that occasionally even when the prostatitis is primarily of gonorrhœal origin, secondary invaders may be present in the prostatic secretion. It is not at all improbable that such an infected secretion when forced into the prostatic urethra may be the starting point of a bacteriuria or even cystitis. For this reason vesical irrigations following massage of the prostate is a procedure long recommended and practiced by Dr. Young. As an additional precaution the prostatic secretion should be stained and carefully studied for organisms before systematic massage is done. If secondary invaders are present the patient should be kept upon moderate doses of urotropin while under treatment.

Acid bacteriuria is practically devoid of symptoms. At times there may be slight burning and frequency of urination due to irritation of the prostatic urethra, but this is seldom of any severity. There is only one thing characteristic of the condition and that is the appearance of the urine. The urine is cloudy, but the cloudiness is similar to that of a bouillon culture. No particles or definite masses are visible as in cystitis or when the turbidity is due to pus. At times it has a peculiar opalescence, no precipitate forms on standing, and when centrifuged in the ordinary way none or little sediment is formed. The usual chemical examinations disclose nothing and it is only on micro-

scopic examination that the true nature of the urinary condition becomes evident. It is then seen that the peculiar character of the urine is due entirely to the presence of enormous numbers of bacteria. In cases of cystitis or pyelitis it is seldom that the fresh urine contains such a myriad of organisms as are seen in bacteriuria. In the first instance the protective forces of the body are brought into play in their fight against the invading organism, inhibiting and reducing their growth, while in the latter instance, not being irritating to the tissues, they grow luxuriantly more in the nature of saprophytes than parasites.

It is rather interesting that in the two cases due to the staphylococcus albus the bacteriuria was alkaline and associated with the presence of large quantities of phosphates. In the third case where the staphylococcus albus was associated with the coli communis the urine usually varied from a slightly acid to a slightly alkaline condition, but on standing, quickly became alkaline with a deposition of a large amount of phosphates. Comparatively few observations of alkaline bacteriuria have been reported and the literature upon this point is rather scanty. Escat¹³ has seen two cases both due to staphylococcus, but no cultures were made. His cases are quite similar to ours and the condition had been present for years and resisted all treatment employed. The alkalinity is not due to an augmentation of phosphates in the urine, but probably to a decomposition of the urea by the organisms with the formation of the ammonium carbonate rendering the urine alkaline. This change in the reaction of the urine results in the precipitation of phosphates. That the alkalinity of the urine was directly due to the action of the micro-organisms seems positive. In the first place the urine obtained from the kidneys was either neutral or slightly acid while the bladder urine was alkaline. Furthermore when the growth of organisms was inhibited by large doses of urotropin the bladder urine became neutral or slightly acid.

In Case III. where both the staphylococcus and colon were present the reaction varied. When microscopic examination showed the staphylococcus in greatest abundance, the urine was alkaline while with an excess of the colon the urine was acid or neutral.

In all of the cases reported in the literature due to the colon

bacillus the urine was always said to have been acid. Whether the invading organism is an acidifier or an alkalizer is of considerable importance to the patient. When the bacteriuria is an acid one, symptoms may be entirely absent or at most of a mild grade, while in the alkaline bacteriuria the symptoms resulting from the passage of the phosphatic material may give rise to most distressing symptoms.

Treatment. In most cases of bacteriuria the condition rapidly clears up with the administration of urotropin or even without the institution of any treatment. Where, however, the infection has been present for any length of time the prognosis is distinctly unfavorable. It is first essential to determine, if possible, the focus which is supplying the organisms to the urinary tract, and to direct attention to the elimination of this focus.

Peyer¹⁴ succeeded in curing some cases of rebellious bacteriuria by directing his treatment to an associated vaginitis. In cases secondary to inflammation of neighboring organs, e. g. the prostate, etc., an effort should be made to eradicate this inflammation. Irrigation of the posterior urethra, instillation of silver nitrate, dilatations and prostatic massage may be tried. Although it may not be possible to entirely eradicate the disease, as in the cases which we have cited, much can be done towards decreasing the amount of infection and relieving the symptoms.

In the cases of renal origin very little can be done. Pelvic lavage may be tried. Urotropin, plenty of water and attention to the general nutrition are the measures of most value.

The results of vaccine therapy have been most discouraging. The patient's own organism has been employed in each case and the vaccine has been injected over a period sufficiently long to test its efficiency. In the staphylococcus infection absolutely no effect was produced. The colon vaccine seems to have done some good, but we are not yet prepared to judge of its real value. In conclusion we may say that:

1. Bacteriuria when persistent is always due to organisms of slight pathogenicity.
2. Bacteriuria due to the *B. coli* produces an acid urine—when due to the staphylococcus albus it may be alkaline and give rise to troublesome phosphaturia.

3. It is secondary to some focus in the urinary tract or neighboring organs.

4. It may persist indefinitely despite all treatment without producing any inflammatory reaction on the part of the vesical mucosa.

5. The results of vaccine therapy are entirely negative as far as the staphylococcus is concerned, but possibly of some value against a colon infection.

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EDITORIALTHE TWO-STAGE PRINCIPLE IN GENITO-
URINARY AND IN GENERAL SURGERY

HOWARD LILIENTHAL, surgeon to Mount Sinai and Bellevue Hospitals, discusses the two-stage principle of operating in the January *Annals of Surgery*. Operating in two stages has long been practiced in colostomy and enterostomy and in cholecystotomy, and in complicated plastic work many sittings are of course necessary. In hypertrophy of the prostate, too, the two-stage operation has become familiar. But Lilienthal argues—and to us very convincingly—for the extension of the principle. He believes that it is also often applicable to intracranial disease, intrapulmonary disease, obstruction of the pylorus as well as of the bile passages, malignant disease of the rectum and suppuration of the kidney (nephrectomy). The security of the patient, he says, must never be lost sight of in the course of our efforts to master the art of surgery. Our motto might well stand, he remarks:

NOT HOW SKILLFUL BUT HOW SAFE.

The danger of double anesthesia is not to be considered in comparison with the added factor of safety. Moreover, there is apt to be a decided shortening of the total duration of the operation. At any rate, we should arrange an operation whenever we can so as to permit cessation of the work at any moment. Also we should try to get through with the essential part of the operation early, so that if we must stop the patient will have been relieved.

Lilienthal says he has regretted bitterly doing too much at one time, but has never regretted dividing the operation. There is no excuse for recklessness simply because a patient may seem capable of enduring an exceptional strain. He pleads for the more general acceptance of the two-stage doctrine in all extra hazardous operations which lend themselves to the principle.

This method minimizes three of the factors which operate surgically as causes of death. They are the anesthetic, excessive loss of blood, and shock. It is self-evident that a quantity of anesthetic may be taken with safety in divided doses which would surely prove lethal if taken all at once. It is equally clear that an amount of blood sufficient to cause death or unduly retard recovery may be lost at an operation aiming at completeness that, cut in two halves with a reasonable interval intervening, would conserve life and insure satisfactory remote results. It is certainly our belief that remote results are not sufficiently considered by many surgeons.

When one analyzes operative shock he finds that it depends usually upon hemorrhage, prolonged anesthesia, prolonged manipulations of vital organs, or operative prolongation of any sort. The two-stage principle tends to reduce these as factors.

There appears to us to be a flaw in Dr. Lilienthal's reasoning when he claims that this method of operating minimizes the psychic as well as the physical impressions. They are not strictly comparable; one may be psychically demoralized as badly in fifteen minutes as in thirty. Profound mental impressions attendant upon the scenes and experiences connected with operations are to be reckoned with as contributory to shock. Lilienthal's other arguments are sufficiently sound, and his paper deserves the most careful consideration. Not only surgeons but all physicians should read it, for we have no doubt that the acceptance or non-acceptance of the two-stage principle may in some cases spell life or death to the patient.

Abstracts and Translations

A CASE OF FELON DUE TO THE GONOCOCCUS INOCULATED BY DIRECT INFECTION: Emery and Sabatier, physicians to the Saint Lazâre Hospital, Paris (*La Clinique*, November 10, 1909, p. 744), report this interesting case. Metastatic abscesses in the course of gonococcus infections have been frequently observed, and cases are cited by See in his thesis, by Rendu, Hinquist, Andry, etc. The last-mentioned author even considers felons as possible manifestations of a metastatic gonorrheal infection, although he does not cite any cases of this sort. With direct inoculation of gonococci Wertheim, we may remember, did not succeed save in producing a local inflammatory reaction, without any suppuration. Steinschneider did not succeed even in producing any inflammation.

The classical textbooks consider the gonococcus as a microbe of suppuration, with an elective localization, and nowhere is the gonococcus mentioned as a possible cause of phlegmonous abscesses of the hands or fingers (felons, panaris). For this reason the case reported is unique. On September 8th a nurse in the service of the St. Lazâre Hospital ran a splinter into her middle finger, and extracted it immediately with the aid of a needle. A few hours later she treated a woman with Bartholinitis, and in dressing the abscess, received a flood of pus upon her finger, which she merely wiped dry. During the night between September 8th and 9th, the nurse began to feel intense pains in the finger, and in spite of hot lotions and poultices, the local infection progressed exactly as an ordinary felon. The forearm became swollen and the glands in the axilla enlarged and painful. There was moderate fever.

On September 13th, the felon was lanced and the pus which issued was thick. On examination this pus contained numerous typical diplococci, a number of which were intracellular and all of which decolorized with Gram's method.

The local infection almost immediately subsided after the incision and the patient made an uneventful recovery. There was no question but that the diplococcus found was a gonococcus, nor was there any question as to the source of the infection.

FOREIGN BODY IN THE URETHRA: A recent experience has convinced Dr. J. H. Dowd, writing in the *New York Medical Journal* (Nov. 6, 1909) of the truth of the saying, "there is no fool like an old fool." He examined a patient who claimed that he had just passed a lady's hat pin in order to relieve stricture and that it had escaped him. A marked hematoma was determined on the under surface of the penis and about 2 inches from the frenum. The corpus spongiosum was punctured but the patient would not agree to external urethrotomy. An endoscopic tube was passed just beyond the point which was felt immediately under the skin, and holding this firmly, the pin was grasped and drawn downward, being dislodged from the mucous membrane and made to enter the lumen of the tube. The head was located deep in the perineal region, the pin was forced upward until the point appeared, when both pin and tube were withdrawn. As there was no prostatic hypertrophy, no evidence of stricture, or history of gonorrhea, the author concludes that altho the patient was 59 years of age and married, he was masturbating and had used the pin as an excitant.

THE USE OF FIBROLYSIN IN TREATMENT OF STRICTURE: Althoff (*Munch. Med. Wochenschrft.*, 1909, No. 31) found some new uses for fibrolysin which had been recommended for the treatment of strictures. In one case in which the remedy was used by rectum, there was marked subjective and objective relief of an arthritis deformans in the hip. In a case of retroflexed fixed uterus fibrolysin was successfully used, effecting the loosening of the adhesions. The treatment consisted in the application of tampons containing glycerin and ichthyol as well as fibrolysin, twice or three times a week.

THE USE OF HYPEREMIA IN THE URETHRA: Porosz of Budapest (*Dtsch. Med. Wchschrft.*, 1909, No. 28) recommends the treatment of urethritis, strictures, etc., by means of hot sounds provided with a double current of hot water. The patient is placed on a chair, the instrument is introduced and the water allowed to flow from an irrigator. The urethra tolerates a temperature of from 50 to 53° C. The method is recommended for strictures of the anterior urethra, but a modification of the instrument has also been constructed for the posterior portion of the canal.

CHRONIC GONORRHEA: Dr. K. F. Hoffmann describes his technique in examination and treatment of cases of chronic gonorrhea (*Münch. Med. Wochschr.*, 1909, No. 19). After the Thompson two-glass test has been made, the bladder is filled with the help of an irrigator with some transparent solution (boracic acid solution, oxy cyanate of mercury 1:4000) until the patient feels like passing water. The bulb is then massaged for a minute and then the patient is allowed to urinate. If we are dealing with a bulbo-cowperitis, the first water passed will contain the pus expressed from the glands. Next the prostate and seminal vesicles are massaged through the rectum, the patient then urinates again. In this case there may either be nothing in the urine or else there will be the thread-like secretion of the normal prostate floating on top, or else the crumply masses of pus from a diseased prostate, which will sink to the bottom. Microscopic examination should always be made. The width of the urethra is next determined by the sound, and the caliber of a stricture, if present, is measured by successively narrower sounds. It now remains to see whether there is any inflammation of the glands of Littré or the sinuses of Morgagni. To this end a hard rubber sound of about 25 charrière is introduced and the anterior urethra palpated. One can often feel the inflamed glands as little knots. In case one feels nothing, the entire dorsal wall of the urethra must be massaged several times between two fingers from before backward. Upon withdrawing the sound the secretion of the glands is seen adherent to it. Otherwise urethroscopy remains as the last resort.

The proper therapy of chronic gonorrhea consists in the proper mechanical treatment of the glands. In conjunction with the massage a thorough irrigation is necessary in order to free the urethral mucous membrane from the expressed microbes. In order to accomplish this the bladder is filled with a 1:3000 solution of potassium permanganate which is allowed to escape after the massage. In chronic prostatitis massage should take place three times a week. In a case of bulbo-

cowperitis the patient is instructed to massage the bulb each morning for two minutes before urination, then to pass water and to retain some of it. In the treatment of the anterior urethra we must distinguish between two conditions. In case we are dealing with *palpable* glands (i. e. those *not* located on the dorsal wall) massage of each separate gland on a hard rubber or Beniqué metal sound of 25 charrière caliber is the most efficacious procedure. On the other hand, if the glands are impalpable or situated on the dorsal wall, they must be mechanically expressed with the short Kollmann dilator. In case gonococci are found on examination, the procedure must be carried out daily, in other cases three times a week.

EXTIRPATION OF THE UNOPENED HYDROCELE.—Dr. Willard Bartlett makes a plea for the treatment of hydrocele of the tunica vaginalis testis by complete extirpation of the sac. His technique is as follows:

After turning out the sac in the ordinary manner, it is easiest to begin its removal at the spermatic cord; the loose areolar tissue connecting these two structures can readily be separated by blunt dissection, as can the tumor from the testicle everywhere except at its lateral reflections from that organ, where some cutting must be done. No fluid need be lost, and one will be surprised at the ease and quickness with which this dissection can be accomplished. It must be stated, in passing, that quite a number of small blood vessels will have to be ligated. After the testicle has been replaced metal clips are placed on the wound in the scrotum so closely as to touch one another; they are quickly covered with powder and no dressing applied. The patient is up and about in four days, and the postoperative effects have differed in no wise from those immediately following other methods.

The author says that his method seems to guarantee the patient against recurrence.

Having completed the intravesical part of the operation, the same technic is employed in closing the wound in the bladder as that which would be used in repairing a wound in the intestines or stomach. The first row of sutures begins and ends with the knot inside. These are of chromic catgut placed as a running mattress or Connell stitch, including all the coats. The mucous edges are turned in, not only making an air-tight and water-tight closure, but also controlling all bleeding from the edges. This suture line is re-enforced by a linen stitch, including the peritoneum, put in parallel to the previous suture line.

It is not necessary to drain the peritoneum or the bladder unless the growth involves the ureteral opening, or unless the prostate is removed, when it is best to establish an independent drainage through the space of Retzius after the bladder has been closed. As a rule, these patients void their urine frequently the first few days and are more com-

fortable without a catheter, though if spasmodic contraction persists in the bladder patients will be made more comfortable by small washings of warm boric acid solution to rid them of clots.

TRANSPERITONEAL REMOVAL OF BLADDER NEOPLASMS.—An operation for removal of bladder neoplasms transperitoneally is described by Dr. E. S. Judd (*J. A. M. A.*, Dec. 25, 1909). He has employed the procedure fifteen times with one death. The technique is as follows:

The patient is placed in the high Trendelenburg position, and on opening the abdomen an opportunity is afforded for exploring the liver, pelvic peritoneum and lymphatics.

The intestines and omentum are packed into the upper abdomen with several large gauze pads, the packing covering the abdominal wound. The posterior bladder wall is grasped with tenaculum forceps, one on either side of the median line, and the bladder lifted into the abdominal incision. A longitudinal incision is made in the posterior wall of the bladder, beginning on its peritoneal surface in the midline and extending well back to the base of the bladder. The urine is sponged from the bladder as soon as it is opened. This should be done carefully so as not to start a troublesome oozing. If the tumor is on a pedicle, this may be grasped by a pair of curved hemostats and excised with a cautery, leaving the cauterized surface to granulate. The area removed should include a portion of the healthy mucosa and submucosa. When the tumor has an indurated base it will be necessary to excise a portion of all the coats. At times as much as one-half the bladder must be removed. It is essential to preserve as much as possible of the healthy tissue about the urethral orifice. If the bladder is involved at the ureteral opening after the diseased portion of the viscus is removed, the ureter is divided near the bladder and drawn into the abdomen through a perforation in the peritoneum close to the remaining half of the bladder, into which it is passed and attached with catgut sutures. The peritoneum is closed over the exposed ureter in a fold, to insure rapid healing. The remainder of the bladder is closed, and, though greatly reduced in size, will be serviceable, and its capacity will tend to increase.

COLLAGOL IN THE VARIOUS FORMS OF CYSTITIS: Dr. F. I. Gramenitsky describes (*Rusky wratsh*, 1909, No. 44) thirteen cases of cystitis of different etiology. Nearly all of them were successfully treated by cleansing the bladder with a 3 per cent. solution of boric acid, followed by untravesical injections of 100 cc. of a 1 per cent. collargol solution, which most of the patients were able to retain until the next micturition. Only in two cases of chronic cystitis, one of

gonorrheal origin, and one due to prostatic hypertrophy, the patients could not retain more than 50 cc. of the collargol solution. In one case of tubercular cystitis in which both kidneys were involved, the result was negative, while in another similar case, in which only one kidney was involved, collargol, after removal of the latter, exercised a very beneficial influence upon the tubercular infection of the bladder. The author considers collargol a valuable therapeutic agent in cystitis, whenever the process is limited to the bladder. He also calls attention to its excellent hemostatic properties and accords to collargol, first place among the silver preparations.

TRANSVERSE RUPTURE OF PROSTATIC URETHRA: Dr. M. R. Root reports the case of a miner who suffered complete transverse rupture of the prostatic urethra (*Denv. Med. Times*, Jan., 1910.) The patient was buried under falling rock and on admission to the hospital it was found that urination and catheterization were impossible. As the bladder was found greatly distended, suprapubic incision was made. The viscus was found uninjured but a triangular piece of bone had passed down behind the symphysis and severed the prostatic urethra and surrounding structure about an inch from the bladder proper. Owing to the retraction of tissues there was left a gap of about three-quarters of an inch in the region of the ejaculatory ducts. A No. 8 French sound was passed through the penis to this gap and then guided through the stump of the bladder neck into the vesical cavity. A small sized catheter was then introduced and the wound cleaned, packed, and closed up. Every day thereafter the catheter was given a turn in the urethra to prevent adhesions. In four weeks the patient was discharging all bladder contents through the catheter which was then removed. The erectile power of the penis was entirely lost, probably permanently, owing to the great destruction of the nerve and blood supply.

VALUE OF THE UNDESCENDED TESTIS: Dr. John Bland-Sutton contributes a thorough article on the value of the undescended testis (*The Practitioner*, Jan., 1910.) He takes up such topics as the importance of the retained organ in abdominal operations, its axial rotation, malignant disease, and emphasizes the following points in his conclusion: 1. The imperfections of an undescended testis are the cause, not the consequence, of its failure to reach its goal in the scrotum. 2. An undescended testis is more liable to malignant disease than one which is normally lodged in the scrotum. 3. Surgical efforts to preserve a retained, or a partially descended testis, may be described as supererogation.

THE WASSERMAN REACTION IN PROSTITUTES: Drever and Mierowsky (*Deutsch. Med. Wochenschrift*, 1909, xxxv, 1698), examined 100 registered prostitutes in Cologne. Fifty-six gave a history of syphilis, but of these only one showed lesions at the examination; in these 56 women, 45 gave a positive reaction (80 per cent.); of the 43 who did not give a history or clinical evidence of syphilis, 32 gave a positive reaction (74 per cent.).

All of those who were registered three years or more, were syphilitic, while of those that were not syphilitic, none had been registered more than three years, and all but three were registered less than one year. This in the opinion of the authors confirms the testimony of other observers that practically every prostitute becomes infected with syphilis within three years, and therefore the so-called natural immunity to syphilis does not really exist.

THE TREATMENT OF STRICTURE: V. C. Pedersen, New York (*Journal A. M. A.*, January 1), discusses the treatment of stricture of the male urethra, the most dangerous after-complication of gonorrheal infection. Early diagnosis of incipient obstruction is the first step and no case of gonorrhea should be described as cured without gentle complete examination of the urethra for thickenings or infiltrations. This should be done about a month after the other treatment when presumably all inflammation has ceased in order not to set up any irritation by too early interference. He quotes at length White and Martin's summary of the treatment of stricture with comments and summarizes the operative indications according to the clinical features as follows: "1. Narrowing at or near the meatus, if treated at all, are always cut. 2. Strictures of large caliber (greater than 15 F.) are treated by gradual dilatation. Cutting is almost never required when such a stricture is in the deep urethra; it is sometimes necessary when the stricture is anterior to the bulbomembraneous juncture. 3. Strictures of small caliber are treated by gradual dilatation if possible; when in the deep urethra they often require external urethrotomy; when anterior to the bulbomembraneous juncture they usually require internal urethrotomy. 4. Impermeable strictures are treated by perineal section, followed at times by excision and mucous membrane grafting. 5. Soft, recent, uncomplicated strictures are always dilated. 6. Fibrous, nodular, irritable strictures complicated by urinary fever, fistula, etc., are always cut." He next takes up the treatment of stricture by dilatation in detail under the heads of the armamentarium, the preliminary treatment, the actual treatment, and the after treatment. He mentions the importance of prevention of reflex anuria and has found a very reliable and rational means of prevention by a reflex vesical action at the end of each treatment caused by filling the bladder with a blood-warm antiseptic

solution. For this purpose he has employed the tunneled or grooved silver, or the standard catheter. Strict asepsis is essential. He finds rigid instruments preferable to flexible ones except in extensive tortuous strictures, besides being more aseptic. A very important detail is care of and relief from the pus organisms and chronic urethritis before the dilatation treatment begins. He specially mentions the use of the irrigating sounds devised by himself which enable the antiseptic solution already mentioned to be used as the last step in each treatment. These add greatly to the comfort of the patient at the end of each dilatation. The after treatment he says is more or less neglected by general practitioners. During active treatment the patient should always have a few moments rest in the office, and in the intervals between treatments should be told to observe sexual rest as far as possible, and urinary rest by the avoidance of alcohol, condiments, and by adherence to simple diet. Urinary antiseptics are wisely administered for at least the first 24 hours after each dilatation, and free drinking of water is to be encouraged. A little pain on urination is to be expected and the patient should be informed. As to the terminal after-treatment, the patient should be taught that, since stricture is fundamentally only scar tissue and liable to contract, he must watch for the first symptoms of recurrence and report once or twice a year for observation and for the early and necessary correction of any slight relapse which may occur.

CUTANEOUS SYPHILIS: Dr. A. Ravogli (*J. A. M. A.*, Jan. 1), publishes the results of his studies, microscopic and otherwise, of the proliferating growths of syphilis. He remarks that in a short article on elephantiasis (*Jour. Cutan. Dis.*, 1906) presented to the American Dermatological Association, he had maintained the luetic origin of this condition when occurring in the genitals, in many instances. He also held that all cases of elephantiasis are started by the presence of infectious germs or of parasites causing irritation and lymph stasis. He goes at length into showing how the germ of syphilis acts in producing vegetating papillary growths, etc. He comes to the conclusion that the proliferating masses of the tertiary syphilitic ulcers show no special characteristics but have common characters with the proliferations of other morbid processes. As regards treatment, it is not difficult to cure the secondary proliferated patches by internal constitutional treatment with external application of calomel or solution of mercuric chlorid, one to five hundred. In some cases strong caustics may be necessary. In some cases, other measures like the use of iodid, local bathing with bichlorid solution, one to one thousand, and local applications of mercurial plasters have been satisfactory, while in others, extensive curetting was required.

THE GENERAL PRACTITIONERS DEPARTMENT

THE THERAPY OF CERTAIN CHRONIC URE- THRAL PROCESSES WITH DISCHARGE

By J. M. THOMPSON, A. B., M.D., Boston, Mass.

WITHOUT in the least underestimating the paramount value of local treatment in acute and chronic urethral processes accompanied with discharge, I must insist upon the great value of internal medication. The number of balsamics and other remedies which have a favorable influence on urethral discharge, is large, but sandalwood oil, in our opinion, still remains the most effective of all.

The best way to administer it is in 10 minim capsule form after meals and at bedtime. In cases where the urine shows a tendency to become at all fetid or phosphatic, as it does in neurotic patients, some efficient urinary antiseptic will be indicated also. Among the number available I have found the formaldehyde preparations most satisfactory, such as urotropin and particularly helmitol. These liberate in the urinary canal formaldehyde, thus ensuring sterilization, but in such cases as require the promotion and preservation of acidity in addition to antiseptis, my preference is for the latter.

In place of sandalwood oil I have lately employed a santal oil methyl ether, known as thyresol. My attention was drawn to this new preparation by an article from the pen of Dr. Paul Richter, of Berlin. It has been used by me in all cases of urethral discharge since June last, with very gratifying results.

The special advantage of this new form of santal oil is its freedom from by-effects, this being due to the fact that it does not liberate santalol in the organism. As has been shown, santalol is the chief element in sandalwood oil responsible for

its irritating effect upon the gastro-intestinal tract and upon the kidneys. I have been favorably impressed, however, with the tablet form of thyresol, containing magnesium carbonate, an ingredient which, to a certain extent, overcomes the tendency to constipation present in so many patients. As constipation favors the development of such complications as epididymitis and prostatitis, this combination appears to be a very logical one. As regards its efficiency, thyresol seems to me fully equal to the oil of sandalwood.

Under the internal medication mentioned above, in connection with appropriate hygienic, dietary and other essential regulations, the patient should be prepared in a few days for such examination as is required to arrive at a complete and correct diagnosis, whether by means of the flexible bougie à boule, urethrometer, digital massage of the prostate and seminal vesicles, or whatever other method should suggest itself, never omitting the two and three glass tests preceding and following digital massage.

Instead of detailed descriptions of the various methods of treatment employed in chronic urethral affections attended with discharge, it has appeared to me more practical to report cases belonging to the different types, illustrating their management.

CASE 1. *Chronic Anterior Urethritis with Acute Exacerbations.* Man, single, aged 30, exposed 2 days previous to his first visit, July 3, 1909, up to which time he had not felt well for several months. He gave a history of 4 previous attacks of gonorrhea, the last complicated with orcho-epididymitis on the left side one year ago, due very likely to a persistent constipation following an attack of typhoid fever three months before. Previous to making an examination of the urethra I resorted to the medication outlined above, and as his digestive apparatus was very sensitive replaced the sandalwood oil with thyresol, giving him 2 tablets after each meal, with injunctions to drink water freely and to partake of a simple light diet. Under this treatment the acute disorder subsided. An examination made on the 8th day disclosed a sensitive granular anterior urethra, a condition which might

be regarded as a stricture in embryo. Sounds No. 21 to 28 (French) were passed every 3 to 5 days for 2 weeks, the santal oil preparation being administered after each instrumentation. Under this treatment complete recovery occurred.

Cases such as the above are very common and likely to be perplexing, for the reason that patients are not disposed to reveal all the facts in their past history. Furthermore, it is just in such cases, when the acute disturbance is removed by internal medication and the patient informed that he has not been suffering from a new infection, that he often fails to return for a urethral examination and treatment. When once a patient finds his discharge checked, not realizing the significance of such lesions as granulating stricture and other sequelæ, he is apt to become his own diagnostician and flatters himself that he has been cured for all time. For this reason the physician should impress upon him the fact that his acute relapse is the result of a deep-seated and longstanding disease, certain to prove serious, should he neglect to have it removed after relief of the acute attack. Otherwise, the moment the discharge and other symptoms cease, he is likely to entertain the notion that it was simply a new infection.

CASE 2. *Periodic Urethral Discharge Following Chronic Congestive Prostate with Profuse Prostatorrhea.* Male, single, aged 34 years, milkman. Five years ago he consulted the writer for urethral discharge, which three physicians had failed to relieve. At that time examination *per rectum* and massage showed a chronic congestion of the prostate with profuse prostatorrhea and associated inflammation of the anterior urethra. Periodically there occurred attacks of vesico-urethral disturbance. The patient was seen July 5, 1909, during one of these attacks, and for the relief of the acute symptoms received sandalwood oil in the form of thyresol, 2 tablets being given after meals and at bedtime, in connection with sexual, dietary and other regulations. At the time of his second visit, July 7th, he informed me for the first time that he had been exposed to infection on July 3d. Suspecting the presence of gonorrheal urethritis, the discharge was examined microscopically, but no gonococci were found. On July 10th it was

practically absent, and prostatic massage was begun and repeated every 3 days up to July 25th. No other change was made during this time in the plan of treatment, except to reduce the dose of the tablets to one after meals and at bedtime. July 26th and 29th and August 1st and 4th sounds were introduced, beginning with No. 21 (French) and increasing 2 sizes at each visit until 29 (French) had been reached. This method of gradual dilatation was always followed by irrigations of protargol, 1-5000. On the day the sounds were passed, as well as the following, the tablets were increased to 2 after meals and at bedtime. The instrumentation with No. 29 (French) was repeated during the last week twice, but the medication continued for one week longer in descending doses. On August 13th the urine was clear in both glasses and free from shreds. The medicinal treatment was discontinued on the 20th. The patient was discharged cured on the 25th, having abandoned treatment for 5 days.

CASE 3. *Acute Urethritis from Latent Chronic Congestive Prostate.* Male, aged 32 years, of temperate habits, but with the history of 2 previous attacks of acute urethral infection, each lasting from 4 to 8 weeks, unattended with complications or sequelæ. The patient consulted me July 1st after exposure 2 days previously. The symptoms were confined to a slight milky discharge, not visible unless the penis was squeezed forcibly. The urine, however, was milky, with shreds in the first glass, but clear in the second. Bacteriologic examinations showed a simple urethritis with prostatic involvement. A diagnosis was made at the time of the first visit of acute simple urethritis due to mechanical irritation, resulting from a previously existing chronic prostatic congestion. In addition to hygienic, dietetic and other regulations the treatment consisted in the administration of santal oil, minims 10, wintergreen oil, minims 2, in capsule form, 4 times daily. On the third day the dose was increased to 4 capsules, but as marked gastric disturbance followed this dose, thyresol was substituted, two pearls being given 4 times daily, with satisfactory results.

The prostate was then massaged every 3 days for 2

weeks, during which time the dose of the drug was gradually reduced, and finally discontinued except on the day following each massage. At the end of the 4th week all the symptoms had disappeared.

CASE 4. *Stricture with Periodic Discharge.* Robust man, aged 58, well nourished, of good habits, extremely active and energetic. He consulted me July 7th, 1909, for urinary discharge and gave a history of 2 attacks of gonorrhea during youth, but none of recent exposure. In view of his statements, I made a probable diagnosis of recurrent discharge from neglected treatment of a constricted canal. Exploratory examination of the urethra with a bougie à boule revealed 3 areas of stricture in the anterior portion. No. 11 (French) was the largest size sound that could be passed. Having but two weeks to devote to treatment and refusing to submit to urethrotomy, I realized that I was in the presence of one who, though anxious to be relieved, was disposed to be his own physician. The reader will bear me out in the statement that such patients are not infrequent visitors, but after explaining the matter to him he finally consented to take thyresol, one tablet being given after meals and at bedtime. The discharge was practically nil on the 10th, the urine being clear in both glasses with some few threads in the first one. I decided in consequence that day to pass sterilized sounds Nos. 11 to 13 (French), which were attended with considerable discomfort and hemorrhage. No disturbance of micturition, however, followed, and though leading a very active life he showed on the 15th clear urine in the first glass. Introduction of sounds Nos. 14 to 18 (French) produced no hemorrhage or marked discomfort. On the 18th, there being no contra-indications, sounds 19 to 22 (French) were passed. The patient then abandoned treatment on account of business engagements, but returned on the 21st of July with absence of discharge and all other symptoms, such as forked-stream urine and inability to control the deep sphincter at the beginning of urination.

This case is typical of a class of patients who, not realizing the serious nature of a stricture of small calibre, gen-

erally consult a physician for impairment of sexual function. For years such patients go the rounds of the doctors, until finally they become disgusted with medication and eventually resort to the specialist.

CASE 5. *Subacute Recurrent Urethritis*. Male, aged 24 years, well nourished, good habits. His present trouble began with acute urethral discharge April 3, 1909. After taking sandalwood oil, 10 minims, 4 times daily, he was apparently cured by June 1st after 3 recurrences. The patient came under my observation for the first time on July 5th, but objected strenuously to taking sandalwood oil, which, he said, deranged his stomach and bowels to such an extent that he believed the debility following its use was the cause of his relapses. In view of this fact I prescribed thyresol, ordering him to take 2 tablets after meals and at bedtime. After 48 hours the discharge was sufficiently relieved to permit of exploratory examination of the urethra. By the use of a No. 22 (French) bougie à boule I discovered two granular areas, one inch and two and one-half inches from the meatus. July 8th gradual dilatation was begun with No. 21 to 23 (French) steel sounds, increased July 13th, 22 to 25 (French), and July 18th, 24 to 27 (French).

During the time of treatment internal medication was continued in the same dose up to July 22d, when the discharge had ceased. On the 26th the urine was found entirely free from shreds in both glasses. During the entire course of treatment there were no evidences of by-effects and the bowels remained regular.

In conclusion I would repeat that, while in cases of the kind discussed above, our main reliance must be placed upon local treatment in connection with appropriate hygienic measures, we cannot deny the value of certain drugs exerting a favorable influence in the relief of certain symptoms, and enabling the physician to employ diagnostic measures with impunity to the patient.

THE EQUIPMENT OF THE GENERAL PRACTITIONER FOR THE DIAGNOSIS AND TREATMENT OF GENITO-URINARY DISEASES

I

The examining or treatment table, the sterilizing outfit, and the irrigating apparatus having been provided, the next subject to be considered in the equipment of the office is the outfit of

Instruments for Urethral Exploration.

The practitioner who is treating genito-urinary diseases necessarily must familiarize himself with the ordinary methods of urethral exploration. The passage of urethral instruments requires much practice and considerable skill, and in the difficult and complicated cases, such as narrow deep seated strictures, a specialist will often have to be consulted. Yet, there are many simpler cases in which urethral exploration and urethral dilatation can be successfully carried on by the general practitioners. We shall speak of the methods of applying the various instruments now to be described, in another section, under the heading of the treatment of chronic urethritis, and of strictures.

The Scale of Sizes.

The scale of sizes of urethral instruments is the first topic to which we turn our attention in this connection. In this country many instrument makers still mark their sounds, bougies, etc., with three different scales,—the English, the American and the French. In practice, however, American surgeons use almost exclusively the so-called French scale, and therefore it is the only scale that a practitioner needs to know.

The French (or Charrière) scale begins with an instrument 1-3 millimeter in diameter (No. 1 F.) and progresses by one-third millimeter for each succeeding number. Thus No. 3 F. measures one millimeter in diameter, No. 6 F. = 2 millimeters; No. 9 F. = 3 millimeters; etc., till No. 30, which measures ten millimeters in diameter. Many of the instrument dealers furnish free of charge, cardboard scales showing the various sizes. Inasmuch as a scale sometimes is used upon sterile instruments, and therefore must be sterilized beforehand, one cannot very well get along without a metal scale or gauge for urethral instruments. These can be purchased for about \$1.75 each, and as the French scale alone is sufficient for all purposes one need not buy the more expensive gauge plates, with the three

scales, the French, the English, and the American. If one has the French scale, and knows how to work with it, one can easily compare catheters or other instruments marked in the other scales, by simply passing the instrument of unknown size through the opening. For reference, however, the following table of sizes may be useful:—

Comparison of Urethral Scales,

FRENCH.	ENGLISH.	AMERICAN.
14	7	9
15	7	10
16	8	11
17	9	11
18	9	12
19	10	13
20	11	13
21	12	14
22	12	14
23	13	15
24	14	16
25	14	16
26	15	17
27	16	18
28	17	19
29	17	19
30	18	20
31	19	21
32	19	21
33	20	22
34	21	23

The scale which we call "French" is known in France by the name of its originator, Charrière, as the Charrière scale. It is the usual scale referred to when no name is specified in French medical literature. It is well to know, however, that the French surgeons have another scale which is known as the Béniqué scale. This scale is never used in the United States, and the only object in speaking of it, is to avoid possible confusion with the Charrière, or as we call it "*the French scale.*"

The object of Beniqué scale is to measure instruments which are not circular or cross section, and have two different diameters, e. g., oval or ellipsoid shafts, like some dilators. The Beniqué scale progresses in the same manner as the Charrière scale, except that instead of the mean diameter (i. e., the diameter of the circle) the two diameters of the shaft are measured, in terms of the Charrière scale and are

added. Thus if the anteroposterior diameter of an instrument, e. g., a lithotrite, with an oval beak, is 32 and the lateral diameter is 30, the instrument will be No. 62 Beniqué: ($30+32=62$). When an instrument is round the sum of the two diameters will be twice the number indicated on the Charrière scale, hence in round instruments the Beniqué size would be obtained by multiplying the Charrière size by two. In instruments with oval cross sections, however, the Beniqué number will always be a little less than twice the Charrière size of the largest diameters. Roughly speaking therefore if a slightly oval instrument is marked 40 Beniqué it will correspond to about 22 Charrière, i. e., our "22 French."

The term Beniqué scale should not be confused with the term: Beniqué curve,—an expression to be considered later on in these talks.

Bougies.

Elsewhere in this issue we have outlined the history of these instruments and the derivation of the term "bougie," or candle. By bougies are meant in English-speaking countries, solid, dilating and exploring instruments with variously shaped ends.

Bougies à boule.—We have no English word which is exactly expressive of these instruments, and consequently the French term is universally used. It would be bad taste to translate it, for "candle with a ball" would not sound well any more than would the English names of some of the dishes which look so appetizing upon the table d'hôte card.

A bougie à boule is an instrument which consists of flexible shaft and a terminal olivary, or bulbous, or acorn-like knob. There are two classes of bougies à boule, the metallic and the woven silk bougies. There is considerable difference of opinion among genito-urinary surgeons as to whether the metallic or the flexible silk bougies of this class should be used for exploration. Some surgeons swear by the metallic bougies, others taboo these and employ only the woven silk instruments. Each of these varieties has its advantages.

The metallic bougies are inexpensive, easily sterilized by boiling, last practically for a life time, with care, and are always ready for use. The disadvantage of the metallic instruments is that they are not as delicate, not as pliable, and are perhaps a little more painful to the patient unless used with great gentleness. The flexible silk bougies are much more expensive, perishable, are sterilized with more difficulty, and are apt, unless kept carefully and properly, to become brittle and useless.

We would advise the practitioner to get a full set of the metallic bougies, sizes from 9 to 34 French. The best type are those which have slightly acorn-shaped bulbs, with rounded "shoulders" and tips.

Otis' olive-shaped bougies are also useful. (Fig. 1.) For examinations of the anterior urethra, which the practitioner is most frequently called upon to make, these metallic bougies will serve practically every purpose. For more delicate work, and for work in the posterior urethra the woven silk bougie à boule are best.

Flexible Woven Instruments.—Since we are now about to speak of an important variety of silk woven bougies, it might be well at this point to say a few words about the general features and the method of manufacture of this class of instruments. We go into these details here because we believe that a clear understanding regarding the material with which one is dealing in these instruments makes their care and the manner of handling them more easily understood.

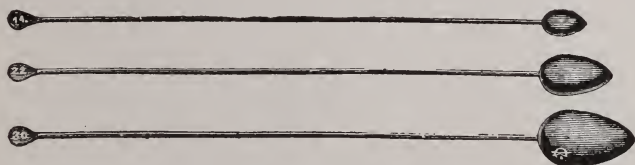


FIG. 1. OTIS' METALLIC BOUGIES.

Elsewhere in this issue we have given some notes upon the history of silk woven bougies. These were formerly known as "gum-elastic" instruments, and in France are sometimes still called *instruments en gomme*, but in reality no gum or rubber enters into their make-up. The foundation for all silk woven instruments is a web of silk fibre, fairly closely braided, of the best quality of silk. Inferior instruments are made of silk and linen, or lisle thread. There are also web bougies and catheters made of cotton, but these are so markedly inferior that they need not be considered here.

The silk web foundation of these instruments is coated with a special preparation, each manufacturer having his own secret formula. An old formula, modifications of which are still used to-day, was published by Pickel of Wurzburg in 1785 (cited after Gouley, *Surg. of Genito-urinary Organs*, 1907, p. 7):

"One part of melted succinum, one part of oil of turpentine, and three parts of common cabinetmakers' varnish which consists of linseed oil boiled with white litharge, subcarbonate of lead, red oxide of lead, or sugar of lead." This mixture was applied to the silk web in three coats. The instruments were dried at 70° for twelve hours, and polished with pumice. After that the instrument was coated fifteen to eighteen times with the same varnish and finally polished with tripoli. The process used now has been simplified and improved. The two essential points are the composition of the coating and the thoroughness

of the polishing. The coating must not be thick enough to make the silk braid invisible, and must be so elastic that cracking will not occur under the most varied conditions. Good instruments, especially those made in France, resist boiling for a few seconds. All woven instruments should be sterilized in formaldehyde vapors (see *The American Journal of Urology*, January, 1910, No. 1, p. 52), but in emergencies, when no other means are at hand, they may be immersed in water and the water just brought to a boil. Thus treated the best makes of these instruments will last for a long time.

The History of Urethral Bougies

The word "bougie" to designate flexible dilating instruments for the urethra is almost universally used, and is so firmly established in surgical nomenclature that it would be very difficult to replace it by a term which might possibly be more correctly expressive.

The original urethral bougies were made of wax, with a wick, and their history has been traced to Aldereto, a physician of Salamanca. Aldereto was said to have taught the manufacture of wax urethral bougies to Amatus Lusitanus (1554), a Portuguese physician, who, in turn, claimed to have instructed Philippe, a wandering Portuguese charlatan. Andrea Lacuna (1551), a Spanish physician, learned the use of these bougies from Philippe. In those days there was supposed to exist a disease known as a "carnosity" or caruncle of the urethra. A wax bougie, when it passed over one of these obstructions (strictures?), became altered in shape, indented. An ointment was smeared into the dent, which was made larger by pressure into the wax, and thus the carnosity was treated by a reintroduction with the bougie loaded with ointment. Such bougies were used by Paré, and several of his contemporaries. Ointments and medicated bougies have been used, in fact, since the sixth century, when Alexander of Tralles spoke of an unguent for the urethra.

The origin of the word "bougie," which in French signifies a candle (candela, candelula, candeletta, virga cerea) is derived by a freak of association from the name of an ancient Roman town, originally the colony of Saldaa, but named Bijiyah, Bougeiah, Bugia and finally Bougie. The town was located about one hundred and twenty-five miles east of Algiers. In the fifth century the ancient Roman settlement was invaded by the Vandals, and in 708 came under the rule of the Arabs. Its name Bijiyah was derived from the name of the Berber tribe, Bedjaia, and was changed to Bugia by the Spanish who took the town in 1509. In 1555, the town was surrendered to the Dey of Algiers, and in 1833 was taken by the French, who called it Bougie, a name under which it had been known in France for several centuries.

One of the principal articles of trade of Bugia was wax, brought

to it by the Kabyl tribes from the interior. The wax and candles of Bugia were sold in France, Italy and Spain, and gradually wax candles became known simply as "Bougies," just as to-day the various wines are simply known by the name of the locality whence they come.

It is to the Arabs, therefore, that we are indebted for the word "bougie," for the first wax candles made, and for a knowledge of wax urethral bougies which is traceable to that seat of Arab medicine, Salamanca.

Wax urethral bougies were revived in France by Jacques Daran (1748), who claimed marvelous virtues for them. The first elastic bougies were made in the eighteenth century. Thedn, of Berlin, coated silk woven bougies with an elastic varnish, following a suggestion of the Frenchman, Herissant, who in 1763 hinted that India rubber dissolved in ether might be used for the manufacture of bougies and catheters. Bernard, in 1779, presented to the Paris Academy of Surgery, elastic silk bougies coated with boiled linseed oil, dried and polished. These were at first known as "gum elastic bougies," but after Bernard published his formula, it was found that there was no rubber in it. Pickel of Wurzburg (1785), also devised a process for making flexible silk, varnished and polished bougies and catheters.

Since then numerous processes along the same lines have been devised, and each manufacturer has some secrets in his process which have never been published. While French bougies are still the best, American makers have lately been successful in producing excellent silk flexible instruments.

UROLOGIC BREVITIES

When a patient voids cloudy urine be sure that the cloudiness is not due to phosphates before telling him he has cystitis. Add a drop or two of nitric acid to every cloudy urine.

In examining a patient's urine voided in the office place the glass receptacle in front of a gas flame or an electric light. The smallest shreds and the faintest clouds of mucus can thus be detected.

Blood from the bladder appears characteristically towards the close of micturition; blood from the urethra or the prostate, appears at the very beginning of the act and the urine becomes clearer towards the end.

The passage of large blood clots in the urine is not necessarily a sign of bladder hemorrhage. Profuse renal bleeding can lead to clotting in the bladder. The only characteristic clots in the urine are the long, cylindrical coagula from the ureters.

The source of blood in the urine can rarely be determined from the appearance of the urine alone. Bright red blood may come from the kidney when the hemorrhage is acute and profuse, and dark brown, diffused blood may come from the bladder when the blood has been in contact with urine for a long time in that viscus.

When a patient is unable to void his urine in the office, leave him alone in the room, taking care to let him hear the trickling stream of a slightly open water faucet nearby. With some patients you need only to strike a certain "note" with the water faucet, and "off they go."

Pain at the end of the penis is usually referred from the prostate or the neck of the bladder. Such a pain occurs in prostatitis, in stone or gravel.

Urethral caruncle in women is the cause of frequency of micturition. Do not forget to look for its presence before sending your patient to a specialist for cystoscopy.

Frequent micturition in women occurs without any changes in the urine and without any lesions in the bladder, as a result of uterine abnormalities.

When prescribing injections for acute gonorrhœa be sure to tell the patient *how much fluid* to inject. The pain or burning sensation of an injection into the anterior arethra depends upon the amount of distension of the acutely inflamed mucosa, and hence even plain water injected forcibly or in too large amount will cause discomfort.

The normal healthy anterior urethra of an adult holds about 10 to 18 c.c. The inflamed urethra holds comfortably only 8 to 10 c.c. A urethral syringe should hold 12 c.c. (i. e., 3 drams) and the patient should inject only half its contents at first, during an acute attack of urethritis.

Always test the resiliency of a soft rubber catheter before introducing it. If the rubber warps or cracks, do not use the catheter, unless you want to risk having a piece remain in the bladder when you withdraw the instrument.

If a soft rubber catheter, especially an old one that has been boiled often, "gets stuck" in the grip of the vesical sphincter, or of a stricture when you attempt to withdraw it inject hot water into the urethra alongside the catheter, by means of a large piston syringe. The heat and pressure of the water will loosen the tight grip on the catheter and it will slip out easily.

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STRICTURE OF THE MALE URETHRA: DILATATION AS A MEANS OF TREATMENT *

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AS the American Urological Association comprises among its members practically only specialists in genito-urinary surgery, it seems fitting to present various principles or maxims which, in my experience as a specialist, have been gained in the treatment of stricture of the male urethra by dilatation.

The first maxim is the definition or proper comprehension of what stricture is. This lesion may be defined as any obstruction of the caliber of the urethra, open or closed in degree, and as any deviation in the natural course of the urethra, major or minor, caused by traumatism or disease, and necessarily associated with permanent alteration in the mucous membrane as such, and of the periurethral structures.

All too often one sees from the hands of general practitioners in internal medicine and surgery patients with a stricture giving symptoms and demanding treatment, who have been told that they had no stricture because they could pass a good stream of urine. This mistake on the part of practitioners, through years and years gone by, has inevitably led the public to believe that a stricture does not exist until it totally obstructs the function of urination. Quite to the contrary, patients should now be taught that deviation in the caliber and form of the canal, resulting from disease or injury, requires attention, independently of the facts as to whether or not they themselves suffer much inconvenience.

* Read before the New York Society of the American Urological Association, January 26, 1910.

The pathology of stricture of the male urethra may be dismissed by realizing that it is only a scar. This is the second principal or maxim to lay down. Like all scar-tissue, anywhere in the body, a stricture is permanent, possesses more or less elasticity, and a very positive tendency to contract after having been cut through or dilated, which leads to the great likelihood of a relapse of closure of the stricture,—that is, of the obstruction to the act of urination. Since, therefore, stricture is a permanent scar, it is a serious error for the general practitioner to make such statements to the laity as “removing a stricture,” or “cutting out a stricture.” As a matter of fact, all that can be done is “to remove the obstruction of a stricture,” or “to cut through the obstruction of a stricture.” In other words, the stricture itself, namely, the scar-tissue, remains for life. I find that many laymen appreciate this by being told that a stricture is a callous zone or a permanent mark of previous disease in the mucous membrane.

The clinical varieties of stricture of the male urethra may be enumerated as follows: As to origin, strictures are congenital or acquired. The congenital forms are usually at the meatus. The acquired forms are traumatic, due to mechanical, thermal or chemical injury and inflammation originating in infections, chiefly gonorrhea. This distinction is arbitrary, because injuries usually induce inflammation, so that fundamentally all acquired strictures are inflammatory.

As to occurrence, strictures may be single or multiple. Regarding anatomical form, they are threadlike or linear, transversely (obliquely or longitudinally placed along the canal; and diaphragmatic or curtainlike, more or less completely shutting off the canal, and having centric, eccentric or lateral openings. Strictures may also be crescentic or bridgelike, in that they are stretched across part of the lumen of the urethra; annular or ringlike, more or less completely and typically resembling a ring.

Strictures may also be localized or extensive, the former occupying little, the latter considerable length of the urethra, thus forming the so-called tortuous, collar-form or sleeve-like stricture. With regard to hardness, strictures may be hard or soft. Strictures, as to behavior, may also be elastic, inelastic,

irritable, inflammatory, relapsing, and, finally, as to course, recent or old, complicated or uncomplicated.

The third principle to lay down is that the action of a stricture is exactly that of a dam in the mill-stream, which causes backset and a rise of level in all the tributaries of the stream. In other words, as the dam makes the resistance to the flow of the stream, so the stricture makes resistance to the flow of urine, which is felt from below upward in regular order, by the urethra behind the stricture, the bladder, the ureters and the kidneys. This fact must never be forgotten by patient or practitioner, because a stricture which does not seem to change the size of stream much may be having a profound reflex effect upon the kidneys, especially if nephritis is coexistent with the stricture.

As to the choice between operative and dilatation treatment of stricture, one may say that the whole question rests on diagnosis. Diagnosis in any disease is like the frame of a picture. One side of the frame is a carefully taken history; the next is a carefully made physical examination, and the third is a minute laboratory investigation. The fourth part of the frame is noting the results of treatment. In many surgical conditions the full knowledge of the disease is not known until treatment has been instituted, and thus it is in stricture. Many strictures which dilate well must finally be cut. Thus, the diagnosis of stricture rests on the best possible knowledge of the number, location, caliber, extent, characteristics, symptoms, complications and reaction of the stricture to treatment.

The fourth dictum regarding stricture is that cutting operations only add a linear scar, usually in the dorsum of the urethra for internal urethrotomy, and in both dorsum and floor in external urethrotomy, to the scar-tissue already existing as the essence of the stricture.

Roughness in passing instruments during the dilatation of stricture increases the scar-tissue in a general way. Any increase in the original scar, that is, in the deposited cicatrix, inelastic or elastic, in the mucous tissue, or in the mucous, sub-mucous or periurethral regions is to be avoided so far as possible, no matter what method of treatment is adopted. Every

family physician and general surgeon should always remember and respect this fact, but, as a rule, too frequently forgets and ignores it. Gentleness, deliberation and patience are watchwords in the treatment of stricture.

I am also of the opinion that every patient with a stricture should receive reasonable instruction and possess a clear comprehension of these facts, so as not to injure himself by insisting upon rapid and violent means of treatment, and not to neglect himself so as thus to invite repeated operation or recurrent dilatation from the extreme of an obstructing stricture upward to the canal of normal diameter.

The diagnosis of the *number* of strictures is made with the following instruments:

Ball-sounds, which are of two kinds: metal and rigid or woven and flexible. The latter are greatly to be preferred.

Woven, olive-pointed dilators and Banks' whalebone bougies.

External perineal palpation and internal rectal touch are very valuable procedures.

Diagnosis of the *location* of stricture is conveniently regarded as a classification of the stricture as existing in one of three regions, from behind forward, as follows:

Region No. 1 embraces the whole membranous and an inch of the bulbous urethra, and extends about $1\frac{3}{4}$ inches in length.

Region No. 2 begins with the anterior limit of region No. 1 and continues to a point $2\frac{1}{2}$ inches from the meatus. Its extent varies from $2\frac{1}{2}$ to 3 inches.

Region No. 3 includes the anterior $2\frac{1}{2}$ inches, measuring backward from the meatus.

Diagnosis of the *caliber* of a stricture may be made by endeavoring to pass instruments through it, preferably ball-point sounds and olive-point dilators and whalebone filiform guides. Personally, I select a size 20 flexible ball-sound, note where it is resisted, and then reduce the size until the stricture is passed. Woven ball-sounds smaller than 12 French as a rule are too flexible for satisfactory passage. It is here that the olive-point dilator is of great value, as its reduced olive

point, its long, gentle, conical tip and reasonably rigid shank will permit one to enter rather small strictures and examine them carefully. Whalebone filiform guides are available in tight strictures. For the method of using these, the reader is referred to my previous paper¹ on this subject. It has long seemed to me that strictures might easily and wisely be classified as to diameter of caliber into three convenient subdivisions: "open" being 20 F. and larger, "close" 10-19 F., both inclusive, and "tight," "obstructing" or "filiform" strictures 9 F. and smaller.

Diagnosis of the *extent* of a stricture marks the cautious expert. It may be made by passing one flexible ball sound through the stricture, and while this remains *in situ*, another to the face of the stricture. Palpation between the two reveals the stricture. By passing an olivary dilator or Banks' bougie partly through the stricture and then palpating the lesion as it spreads along the instrument, either externally on the penis, or internally through the rectum, one determines the length of the lesion very accurately.

Diagnosis of the *characteristics* of a stricture rests largely on the subjective history, the age of the stricture, the rapidity with which symptoms have arisen, especially obstruction, the number and forms of repeated treatment, and similar factors, which cannot be enumerated without offense to the title of this paper. For the same reason, I cannot discuss here the moment and the meaning of various symptoms, as they arise, except to say that they are subdivisible into those concerned with the act of urination, urethral discharge, the sexual function and neuroses.

A most important characteristic, however, which is the fifth factor for remembrance, is the bacteriology of stricture, by which I mean that in all possible cases a diagnosis must be reached as to whether or not the morning drop, the shreds and the urine from a stricture-case contain organisms. A number of smears must always be made and examined, and massage of the region should be gently carried out, and sometimes even mild irritation of a stricture excited, in order to reach a decision. It must be remembered that smears "diag-

nose themselves," by which is meant the fact that a negative individual smear does not necessarily mean a noninfective stricture. The importance of all this is the fact that gonorrheal rheumatism and septicemia, urethral fever and the like, may all be caused by a blind attack upon a stricture which is a hotbed of organisms.

Diagnosis of the *complications* of stricture is self-evident as a rule, from a careful history and minute examination. The nature of this paper forbids discussion, but permits enumeration of the common complications: chronic urethritis (infective and noninfective); periurethritis, usually progressive; periurethral abscess (acute, subacute and chronic); false passages, usually from improper treatment, not uncommonly as sequels of the stricture-process itself; prostatitis in various forms (acute, subacute, chronic inflammation or congestion; general, focal or follicular suppuration and hypertrophy); cystitis; ureteritis and nephritis (among the most serious and important).

The sixth dictum for universal acceptance is that the existence of a kidney-lesion caused by or associated with stricture must be known, and whenever possible, benefited by treatment, before attack upon the stricture is begun. The dangers of kidney-lesions are those of reflex or septic anuria, of a mild kidney-insufficiency rendered suddenly severe, and of a urine too low in antiseptic values constantly permitting infection of the bladder. Consequently, I believe that most stricture-cases will be benefited by a preliminary administration of urinary antiseptics; which should be continued during the more active treatment.

The seventh maxim for the general practitioner and surgeon to remember is: make a reasonable effort to dilate all strictures. Exceptions to this rule are (1) when drainage is indicated as a means of benefiting the posterior urethra and bladder; (2) when the stricture is smaller than 7 French in caliber, because most of this class of case are complicated and benefited by an open operation; (3) when a stricture is highly elastic, and does not remain dilated, and (4) when complications coexist with the stricture. The following other general principles as to choice between operation and dilatation are from my previous paper on this general subject:²

"1. Gradual¹ dilatation is indicated as the treatment of choice in all recent, soft, or dilatable strictures found in any part of the urethra, without regard to the caliber of such strictures." [The key-term here is "recent stricture." If intervention with newly formed infiltrations is begun too soon they will be stimulated to form a traumatic stricture whose character will vary according to the nature, frequency and violence of the treatment and the reaction of the patient's tissues in such cases.]

"2. Continuous dilatation is indicated in uncomplicated strictures which are so tight that no instrument larger than a filiform can be made to pass. This continuous dilatation is practiced till a small metal instrument can be introduced—No. 12 to No. 16 [French scale]. Then the normal caliber of the urethra is restored by gradual dilatation or by cutting, in accordance with the nature of the clinical behavior of the stricture." [To carry a tight stricture which accepts at first a filiform up to 12 to 16 F. by continuous dilatation might in many cases result in infection of the bladder. In my experience one or two filiforms will dilate the stricture to 7, 8 or 9 F., after which tunneled and grooved sounds may be employed. Uncomplicated strictures are, of course, understood as alone concerned in these statements.]

"3. Internal urethrotomy is indicated in all fibrous, irritable, and resilient strictures anterior to the bulbomembranous juncture. Narrowings at or near the meatus should be treated by the knife whenever it is apparent that they are responsible for definite symptoms. The division is here made on the floor of the urethra. All other anterior strictures are divided along the roof." [Before internal urethrotomy is ever attempted, except in emergencies, a bacteriologic examination should be made of pus present. If vicious germs are present local treatment should be attempted for their destruction before any operation whatever is practicable.]

"4. External perineal urethrotomy is indicated in all fibrous, resilient, or irritable strictures situated behind the bulbomembranous juncture." [The best or one of the greatest

¹ White and Martin: *Genito-Urinary and Venereal Diseases*, ed. 8, pp. 255-256.

indications for external urethrotomy is the presence of pus which would be benefited by the drainage of this operation. The same comment is warranted with regard to the following paragraph.]

"5. Combined internal and external urethrotomy is indicated in the treatment of anterior strictures which are unusually dense or nodular and which are complicated by fistulas."

"6. Perineal section, or external perineal urethrotomy without a guide, is indicated in the treatment of impassable stricture of the deep urethra. When the proximal urethral end cannot be found, suprapubic cystotomy and retrograde catheterization are justifiable."

"7. Excision is indicated in cases of impermeable stricture, nodular or fibroid, where there has been complete destruction of mucous membrane. When so much tissue is removed that it is impossible to bring the divided urethral ends in apposition, transplantation of mucous membrane is indicated." [The majority of strictures are inflammatory. The end result of any excision operation must in greater or lesser degree be an annular traumatic stricture which, probably without a single exception, is the most intractable form of stricture, therefore the application of excision is deservedly a question of the gravest possible doubt.]

"Formulating the operative indications in accordance with the clinical features of the stricture, the following summary of treatment is given:

"1. Narrowings at or near the meatus, if treated at all, are always cut.

"2. Strictures of large caliber (greater than 15 F.) are treated by gradual dilatation. Cutting is almost never required when such a stricture is in the deep urethra; it is sometimes necessary when the stricture is anterior to the bulbomembranous juncture.

"3. Strictures of small caliber are treated by gradual dilatation if possible; when in the deep urethra they often require external urethrotomy; when anterior to the bulbomembranous juncture they usually require internal urethrotomy.

"4. Impermeable strictures are treated by perineal sec-

tion, followed at times by excision and mucous membrane grafting.

"5. Soft, recent, uncomplicated strictures are always dilated.

"6. Fibrous, nodular, irritable strictures complicated by urinary fever, fistula, etc., are always cut."

Having recognized the applicability of dilation as the treatment of a given stricture, we now consider the matters of foretreatment of the patient, the stricture and urethra, instruments, actual dilatation, aftertreatment and prophylaxis.

The forecare of the patient concerns the treatment of the kidneys, urine, and urethra, and embraces the administration of urinary antiseptics and of reasonable irrigation of accessible urethral mucous membrane. The preliminary attention to the stricture itself concerns the local use of styptics (adrenalin), antiseptics (weak solutions of nitrate of silver) and at times local anesthetics (weak combinations of cocaine, eucain, and alypin). Meatotomy is an important step, not only for permitting the passage of suitable instruments, but also for granting due drainage of the canal. There is no doubt that a small meatus invites stricture in the third region of the urethra by retarding the drainage of gonorrheal pus, and thus by increasing the penetration of the disease.

The instruments available for dilatation are of two classes: woven or flexible, or metal or rigid. The flexible instruments include whalebone filiform guides, woven filiform guides, Banks' whalebone dilators, woven olive-pointed dilators, preferably those with a core filled with fine lead shot, flexible woven catheters and olive-pointed catheters. The metal instruments are preferably the author's tunneled and grooved irrigating sounds and standard irrigating sounds and Kollmann's mechanical dilators.

Figures 1 and 2, with inscriptions, show and describe the author's tunneled and grooved irrigating and standard irrigating sounds. The detailed discussion of these will be found in the author's original paper³ in the "Annals of Surgery," for October, 1909, from which these cuts have been taken.

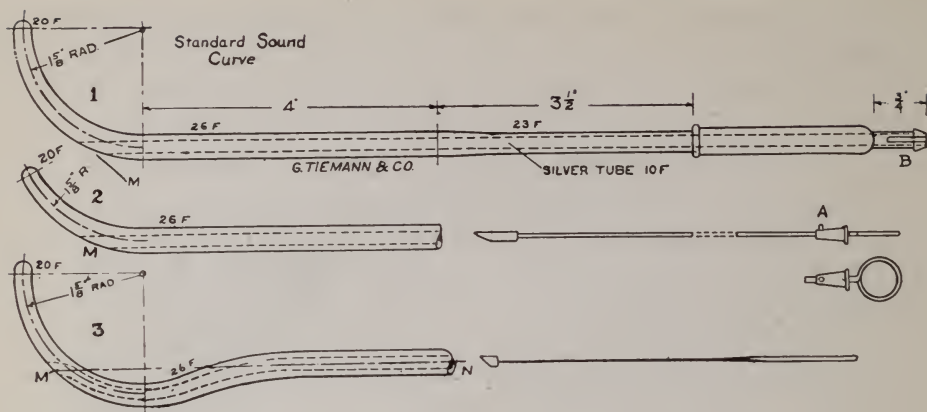


FIG. 1.

From above downward are shown the sounds with standard, shortened and Beniqué tips. The 6-size taper from straight shaft to point (26-20 F.) is indicated, also the 3-size reduction of Chetwood near the handle (26-23 F.). *M* points to the bladder outlet of the silver tube (10 F. diameter) and *B* to the hose-connection, identical for all sizes of the set. In the Beniqué instrument *M* shows the straight projection forward of the tube to open in the curve at a point just above the bladder floor. *A* illustrates the obturator. Note the position of the little plug far down the handle of *A*, to agree with the long slot in *B*; if the obturator is not properly seated in *B* the plug will not show at *M*, thus avoiding the accident of having the short point of the obturator project against the urethra and bladder, because this point is shorter than the slot in *B*.

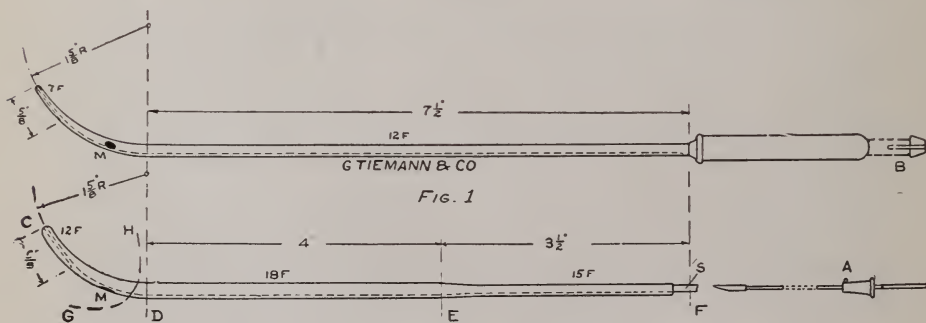


FIG. 2

N^{os} 7, 8, 9, 10, 11, 12 are made of steel tubing, nickel plated opening on side in order to clear the groove (*M*, Fig. 1)
 N^{os} 13, 14, 15, 16, 17, 18, 19, 20, open on the convexity of the curve (*M*, Fig. 2)

N^{os} 8, 9, 10, 11, 12 taper to 7 at the end, in Nos 13, 14, 15, 16, 17 the taper is six numbers, uniformly (Fig. 1)

Only N^o 18 and larger are double tapered. In a N^o 'N' sound the curved portion i.e. between C and D would increase from 'N-6' at C to 'N' at D, the portion between D and E is of uniform circumference, 'N'; and the portion between E and F is also of uniform circumference but smaller i.e. 'N-3' (Fig. 2)

In all sizes the diameter of tunnel and groove, the handle, and the rubber hose fitting are the same

N^o 13 and larger have a silver tube (*S*) which is the same in all sizes, 7 F. (Fig. 2)

All the above numbers refer to the French scale

The eighth principle of value for the general practitioner and surgeon is to determine the type of instruments to be used for dilatation: in other words, woven and flexible, versus rigid and metallic means. The factors of the decision in brief are the extent of the stricture along the urethra, the thickness of the stricture walls, the tortuosity of the lumen and the amount of the discharge (partially synonymous with the degree of inflammation present). Long, thick, tortuous and irritable or inflammable strictures certainly indicate soft instruments until they are raised to size 20 French in diameter, when they are open strictures, and may frequently be benefited by resort to steel instruments. Relapse of a stricture after a cutting operation is usually very tortuous, thick, inelastic and dense, and requires soft instruments. Sometimes only the soft instruments may be used, no matter what the diameter of the stricture may be. This is particularly true where the tortuosity or alteration in the course of the canal is great. I have frequently seen a stricture which, without pain, would take a 28 French flexible instrument refuse a 24 French steel instrument, excepting at the cost of force and pain. The reason is at once obvious, namely: the steel instrument not only dilates the caliber centrifugally, but also spreads the canal forcibly from great tortuosity to a relatively straight line. In these cases the use of a steel instrument is a mistake, because it causes sufficient traumatism to add to the scar-tissue. Stricture of the prostatic urethra and neck of the bladder, following prostatectomy, always requires soft instruments. Strictures which cover a short length of the canal are bandlike or ringlike in form, and are best treated with steel instruments. Tortuous strictures, with thin walls, after having been dilated with soft instruments, are not uncommonly benefited by steel instruments and massage.

The ninth maxim, which is a strong conviction of the writer, is always to supply the bladder with an artificial urine in the form of warm antiseptic solution, which is passed by the patient at the end of each treatment. The obvious advantages of this very simple procedure are detailed in my previous two papers.³ The application of soft instruments to accom-

plish this, however, was not previously described. It is as follows: An olive-pointed woven catheter is taken and threaded over a woven dilator, common or lead core. Into a very small size of catheter whalebone guides may be passed with advantage as obturators. After the stricture has been passed the obturator is removed and the bladder duly filled. Figure 3 shows the catheter with its lead-core dilator as obturator seated fully home. It will be noted that the gentle cone of the tip of the catheter is followed by a small area of its length corresponding with the tip of the dilator, which is relatively less supported by the dilator. This "give" or compressibility only adds to the gentleness of the dilatation and is an advantage. As a rule, a difference of about 6 or 11 sizes French occur between the outside diameter of the catheter and that of the dilator; for example, a 22 F. catheter has a bore of 12 or 11 F., and therefore needs a dilator of either of these sizes.



AB represents the olive-point, woven lisle-thread catheter, and CD represents the cone-point, lead-core, woven lisle-thread dilator, used as an obturator, seated home in the lumen of the catheter, extending from the open funnel-end D, to the eye at E. The failure of the point of the obturator to support the wall of the catheter just back of the eye is clearly shown, EF.

Another method is the "Two-Journey Plan." The dilator is passed, and after remaining the required time, withdrawn, and a catheter of slightly smaller size substituted. This double invasion of the passage is to be avoided whenever possible, but it, after all, is, I believe, better than the omission of the artificial urine in order to sterilize the bladder and wash out the urethra. The use of the irrigating sounds in order to accomplish the same ends is familiar from the previous descriptions,^{1, 3}. These, however, omitted to state that in order to prevent the small steel tunneled and grooved irrigating sounds from rusting in their caliber, they should be dried as well as possible in dry heat, or have the moisture blown from

them, and then the obturator dipped deeply into the liquid albolene, should be seated home. In this way the lumen is kept free from moisture, oiled internally and remains rust-free.

The next and tenth maxim is to pass through a stricture once and only once at each visit, if possible, and do not repeat the visits oftener than absolutely necessary. The elements of the necessity are the rate of recovery of the mucous membrane from inflammation and the resiliency of the stricture itself.

In general it takes from four to seven days for a mucous membrane anywhere in the body to recover reasonably from artificial interference. More frequent visits may induce an edema, which will allow only a smaller instrument to be used at the next visit, or they may excite inflammation, which defeats the treatment and increases the disease by adding to the scar comprising the lesion. I find that most strictures (except in emergency cases) do best under the rule of a careful diagnostic visit, followed, when possible, by the first actual dilatation in four or five days, and thereafter by subsequent dilatations about once in seven days. Strictures whose elasticity is greater than the effort of dilatation, that is, which will relapse to their original caliber in from four to seven days, should almost always be cut.

The next and eleventh rule is to seek to obtain maximum results not by force but by duration of dilatation, that is, to leave the instrument in place five to ten minutes by the watch. The good effect of gentle means, long applied, is vastly greater than stronger methods more briefly applied. This rule is co-ordinate with that long recognized by every skilful gynecologist, namely, that slow dilatation of the os uteri is better than rapid. Not infrequently these specialists will devote most of the time of a curetting operation, for example, to the detail of slow dilatation. The wisdom of this procedure needs no argument.

The next, and twelfth, fundamental for observation is that the rate or advance of dilatation should not be more than 2 French sizes at a time, and in cases of tortuous, irritable and obstructive strictures, not more than one number

at a time. This is particularly important in the use of Kollmann's dilators previously omitted with intention. The writer remembers hearing the late Robert W. Taylor, as his Professor, call Kollmann's dilator the "modern juggernaut." So it may be, if the instrument is inserted and dilated rapidly. On the other hand, however, if it is advanced a half-number or one number at a time, it becomes, in selected cases, a very valuable instrument. This selection of case is a patient who refuses meatotomy and has a stricture giving symptoms and having a caliber of about 24 French, which is the diameter of the closed instrument.

The last, and thirteenth, caution is to avoid as much as possible, bleeding in the dilation treatment of stricture, greater in degree than a few drops, the reason being that one does not know, even after bacteriologic research, whether the stricture is infectious or not. It is, therefore, inadvisable, to invite absorption of possibly infectious material by opening up the mucous membrane.

The aftertreatment of stricture closes this paper. Whether the "obstruction of a stricture has been removed" by a cutting operation or by dilatation, aftertreatment is necessary in the very nature and essence of scar-tissue. Too few medical men in general realize this, and it is one of the most difficult lessons to teach the laity. The scar of a stricture is in the urethra for life. I cannot dismiss the subject of aftertreatment better than to quote in full the paragraphs on the same subject from my previous paper:

"Careful inquiry among patients coming from general practitioners elicits the fact that the aftertreatment of stricture is more or less neglected. It comprises two steps, the aftertreatment of active instrumentation and the later prevention of relapses of the strictures. During active treatment the patient should always have a few moments' rest in the office, and should be told to observe between treatments sexual rest as far as possible and urinary rest by the avoidance of alcohol, condiments and adherence to proper, that is, simple diet.

"Urinary antiseptics are wisely administered for at least

the first twenty-four hours after each dilatation. Antispasmodics are best provided for by the free drinking of water, light diet and abstinence from sexual intercourse and alcohol. Mental reassurance of the patient is very necessary, as to the facts that there will necessarily be a little pain on urination, occasionally a little discomfort during erection, and sometimes a little discharge for the first day or more after instrumentation. The patient should know that all these things are normal results of the mechanical treatment, are unavoidable and not matters of concern.

"As to the terminal aftertreatment, that is, the avoidance of recurrence of the stricture, a patient with stricture should be taught that, since the stricture is fundamentally only a scar, it cannot ordinarily be literally removed from the passage-way; only its power of obstruction is corrected. He should know, therefore, that, like all other scars, strictures with age and time tend to dry or harden and shrivel or contract and thus to reclose or reobstruct the urethra. When he understands that this is the law of all scar-tissue, and therefore the law of stricture, he will be only too ready to report once or twice a year for observation, and, if necessary, correction of any slight relapse present.

"Attention to these details and the employment of the irrigation method of dilating the strictures as embodied in these sounds will, I am convinced, render the management of stricture-cases far more felicitous. If one might utter an epigram to sum up the dilatation treatment of stricture for the general practitioner and general surgeon, it would be in the majority of cases: Maximum results, minimum interference."

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ETIOLOGY AND SYMPTOMATOLOGY OF CHRONIC PROSTATITIS, WITH A RE- PORT OF 521 CASES AND A STATIS- TICAL ANALYSIS OF 1788 CASES

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CHRONIC inflammation of the prostate gland is one of the most common diseases encountered in genito-urinary work. Still, when the literature on the subject is reviewed, one is surprised at the evident lack of detailed, systematic or statistical information on the subject. The disease itself is so varied in its etiology, symptomatology and course that more definite systematization of data is needed before conclusions of true scientific value can be drawn. The average genito-urinary text book attempts merely to present a general conception of the disease without supplying extensive detail, and the isolated case-reports on chronic prostatitis are usually accounts of more or less specific deviations from the accepted text-book descriptions and, while of interest in themselves, are not available for statistical study. Undoubtedly many investigators, who have kept careful and detailed histories of their cases, would be glad to contribute to what is known of the disease if feasible means and methods of comparing their results with the experience of others were at hand. It is the writer's intention to stimulate a further study of this phase of the question by adding the results of his own experience in private practice to that presented in the extended article on "Chronic Prostatitis" by Young, Geraghty and Stevens in the *Johns Hopkins Hospital Reports*, Vol. XIII, 1906. The laboratory facilities of these men permitted a thorough study of the bacteriology and pathology of this disease, and the reader is respectfully referred to their work for a detailed report on these phases and for an excellent review of the literature.

The method of presenting the facts here selected is the one usually employed by statistical workers, and consists in the establishment of percentage tables and the graphic expression of these results in the form of curves. The writer has constructed percentage curves, from the tables of Young, Geraghty and Stevens, summarizing 358 cases; also from the 909 cases of Notthafft and from 521 personal observations. These should prove of value in a study of comparative experience in the etiology and symptomatology.

From the data thus assembled, a composite percentage curve has been drawn which may further be used by investigators and collaborators for the comparison of their experiences in dealing with this most interesting subject. When the number has reached several thousand, we shall be able to say, with something like scientific accuracy that certain features obtain in a given percentage of cases, and the personal equation of any one investigator will be eliminated in the composite thus progressively constructed.

It is not at all likely that chronic prostatitis will present the same etiology and symptomatology in all races or in all conditions of life. Neither is it likely that results from cities with a preponderance of German, Italian, or Polish will tally with those from cities of more cosmopolitan population. Similarly, men of wide experience and greater reputation will be likely to have the more serious and desperate cases referred to them, and their results, therefore, will not coincide in detail with the experience of those having less extensive practice. The total picture, however, will be a valuable one.

The terminology is the one commonly employed by the genito-urinary surgeons in this country and abroad and needs no explanation. The writer has followed Young, Geraghty and Stevens' method of presenting the data in "block form," i. e., sex symptoms, referred symptoms, etc. Naturally, each block of symptoms will not be found in all cases, hence a double percentage table must be constructed, one to show the frequency of a given symptom in the symptom block and another to show its percentage in all cases. On this account the writer has introduced the terms "symptom percentage"

and "case percentage" to indicate these two curves. For example, in 521 cases, sex symptoms were noted in 322; of these 322 cases with sex symptoms, prostaticorrhea was found in 776, giving a *symptom* percentage of 23.6%. But this number, compared with the whole series, gives a *case* percentage of 14.6%.

The age-curve, Table I, shows that more of the writer's patients were from the younger generation. Of these treated, 55.9% were under 30 years; Young, Geraghty and Stevens' cases, on the other hand, show 66.9% over 30 years of age. Undoubtedly the difference in the ages of the patients may be accounted for by the difference in the class of practice and the percentage of referred cases. Curves from the writer's series of cases will probably meet the experience of the average genito-urinary surgeon more nearly than those from the series of Young, Geraghty and Stevens.

Etiology (Table II)

The prostate, because of its position and structure, is very likely to be involved in a posterior urethritis and, indeed, some are of the opinion that the prostate is infected in all cases of posterior urethritis. The difficulty in isolating the gonococcus, together with the extremely unsatisfactory bacteriological findings, make it necessary to assume that, when a patient has had a specific urethritis, it is the causal factor. The following table, drawn from Young, Geraghty and Stevens' monograph, shows the variations in frequency attributed to gonorrhea as the causal factor of chronic prostatitis by different men at successive dates:

1885	Montagnon	70%
1886	Eraud	70%
1894	Pezzoli	80%
1903	Casper	85%
1903	Walach	94%
1906	Young	73%
(or, eliminating 53 cases in which no etiology was obtained		86.5%)
1910	Moore	82%
(which the writer has added to the above)		

The causal factors in the cases with no gonorrheal history showed other infections (tuberculosis and la grippe) in a very small percentage of cases. Others gave histories of excessive sexual excitement, prolonged sexual intercourse, coitus interruptus or masturbation. External traumatism and instrumentation appear as mechanical causes. Excluding the 53 cases reported by Young, Geraghty and Stevens, where no apparent causal factor was obtained, the two curves practically coincide.

Symptomatology (Tables III, IV, V)

The symptomatology is divided into three parts: Sexual symptoms (Table III); urinary symptoms (Table IV); and referred symptoms (Table V).

Sexual Symptoms (Table III)

The sexual symptoms were present in 13.9% of Notthafft's cases, in 63.9% of Young, Geraghty and Stevens', and in 61.6% of the writer's. A comparison of the curves plotted for Young, Geraghty and Stevens' and for the writer's cases shows that Young, Geraghty and Stevens have proportionately fewer patients with prostatorrhea, diminished vigor and sexual hypersensitiveness and a proportionately greater number with premature ejaculations. This apparent incongruity in the sexual manifestations needs reports on many more cases before it can be properly interpreted. Notthafft's cases display a unique symptomatology with high percentage of prostatorrhea and frequent nocturnal emissions and a very low percentage in diminished vigor. While this curve is entirely different from Young, Geraghty and Stevens' and the writer's, on comparing the symptom-percentage with the case-percentage, it will be seen that Notthafft had but few cases that displayed sexual symptoms. This fact appears to point to the possibility of racial differences and should caution the genito-urinary surgeon to be careful not to overestimate the importance of certain findings of foreign investigators in comparing their statistics with those obtained in this country. The

average types of patients are undoubtedly quite different in various parts of the world, and this would manifest itself most markedly in subjective symptoms.

Urinary Symptoms (Table IV)

According to Young, Geraghty and Stevens, the urinary symptoms are about as frequent as the sexual symptoms—the proportion being 4:5. In the writer's series here reported the urinary symptoms are about twice as frequent as the sexual. Likewise, while these cases showed a large number with increased frequency of urination, burning and pain, it will be noted from the case-percentage table that these symptoms are not really so prominent. Therefore, much more statistical information is required before the relative percentages of these symptoms can be established.

Referred Symptoms (Table V)

The referred symptoms, while classed as pain, include all abnormal sensations of discomfort—irritation, fullness, soreness, tickling constriction, and gnawing. Some patients complain of coldness of the penis; others of a shrinking, and others again of a crawling sensation in the penis.

Young, Geraghty and Stevens find referred symptoms in 77.4% of all cases; Notthafft in 76.4%, while the writer reports them in 138.9%. This marked difference in the percentage of referred symptoms may be due to the fact that the writer has included all the referred symptoms in each case, while Young, Geraghty, and Stevens and Notthafft may have selected only the most prominent ones. The curves for Young, Geraghty and Stevens and for the writer correspond fairly well. A greater number of Young, Geraghty and Stevens' cases, however, complain of pain in the back and a lesser number of pain at the neck of the bladder. Notthafft's curve again shows marked peculiarity in his cases—no symptoms referred to the back, only a few cases with pain in the perineum and the neck of the bladder, while the majority show rectal, penile and urethral distress.

Conclusions

Table IV represents a composite picture of Young, Geraghty and Stevens' 358 cases and of the writer's 521 cases. The continuous black line corresponds with the sums of the percentage columns and shows the average percentage in all cases, the divisor being 879, except in Table I, where it is 870. The broken black line illustrates the symptom-percentage, i. e., the frequency of a given symptom in the "symptom block."

Inasmuch as all the curves have been plotted on the descending ratio in percentage, of the writer's cases, the major differences in opinion are shown in the composite by the up-and-down variations in the curve lines.

We may arbitrarily indicate frequency in occurrence of the various factors as follows:

Over 15% as most common, 10 to 15% as common, 5 to 10% as uncommon, under 5% in all cases as rare.

This permits conclusions in the etiology and symptomatology of the disease as follows:

I. Age.—Chronic prostatitis is most commonly found between 20 and 40. It is common between 40 and 50; uncommon from 50 to 60; and rare below 20 and above 60.

II. Etiology.—Gonorrhea is without question the causal factor in the vast majority of all cases. Masturbation is an uncommon cause. Prolonged sexual excitement, traumatism, descending infection and influenza taken together are causal factors in 6.3% only of the cases and are, therefore, rare causes.

III. Sexual Symptoms.—Prostatorrhea, diminished vigor, premature ejaculations and imperfect erections are the most common symptoms; frequent nocturnal emissions are common; sexual hypersensitiveness is uncommon, and disturbing (painful erections) and painful ejaculations are rare. Prostatitis is, therefore, accompanied by sexual depression rather than sexual excitement.

IV. Urinary Symptoms.—The urinary symptoms found most common are frequency and urgency of urination. Pain

or burning during urination, slow or difficult urination are common, as is also irritable prostate. Pain at the end of urination is uncommon; and pain at the beginning and dribbling at the end of urination are rare.

V. Referred Symptoms.—Pain in the back (low lumbar) and in the perineum are most common; pain in the rectum, neck of bladder, penis or urethra and suprapubic pain are common. Pain in the groin and testicle and thigh are uncommon, and all the other symptoms, pains in the leg, hip, knee, over sacrum, in buttocks, over kidney, simulating renal colic, simulating sciatica, are rare.

The sexual symptoms, taken as a whole, are found in 62.6% of all cases; the urinary in 94%; while the referred symptoms, counted singly, are found in 113.8%.

This composite picture lends itself well to further study on the part of all investigators, and, when sufficient numbers have been analyzed and tabulated, the data will not only be arranged in a systematic manner, but the statistics will be accurate and easily understood.

If the method of presenting the facts appeals to other investigators, the writer suggests that they cut the composite curves into separate blocks and compare them with their own results and then plot new composites to represent the conclusions in the total number of cases.

TABLE I.

	CASES		PER CENT		
Total	349	521	100	100	5
Under 20.....	8	25	2.3	4.9	10
20-30	109	267	31.2	51.0	15
30-40	104	147	29.8	28.2	20
40-50	76	41	21.5	7.8	25
50-60	39	22	11.2	4.2	30
60-70	13	19	4.0	3.6	35
					40
					45
					50

Ages not stated in 9 of the 358 cases of Young, Geraghty and Stevens.

TABLE II.

	CASES		PER CENT.		
Total	358	521	100	100	5
Gonorrhea	262	427	73.1	82.0	10
Masturbation	27	53	7.5	10.2	15
Prolonged sexual excitement... (Coitus Interruptus.)	7	22	2.0	4.2	20
Traumatism	3	13	0.8	2.5	25
Instrumentation	2	3	0.5	0.5	30
Descending infection... (Tuberculosis.)	3	2	0.8	0.4	35
La grippe.....	1	1	0.2	0.1	40
No etiology.....	53	0	14.8	.0	45
					50
					55
					60
					65
					70
					75
					80

TABLE III.

	CASES			PER CENT.				PER CENT.			
Total	229	322	127	100	100	100	5	63.9	61.6	13.9	5
Prostatorrhœa	41	76	63	17.9	23.6	49.6	10	11.5	14.6	6.9	10
Diminished vigor.....	33	68	1	14.4	21.1	0.8	15	9.2	13.0	0.1	15
Frequent nocturnal emissions...	31	47	9	13.5	14.8	7.1	20	8.6	9.0	1.0	20
Imperfect or absent erections..	38	47	16	16.5	14.5	11.7	25	10.6	9.0	1.6	25
Premature ejaculations.....	64	35	18	27.9	10.3	14.2	30	17.9	6.7	2.0	30
Sexual hypersensitiveness.....	7	2	7	3.0	7.7	5.5	35	1.9	4.8	0.8	35
Painful ejaculations.....	7		14	3.0	4.3	11.0	40	1.9	2.7	1.5	40
Disturbing (painful) erections..	8	10	0	3.4	3.1	.0	45	2.2	1.9	.0	45

TABLE IV.

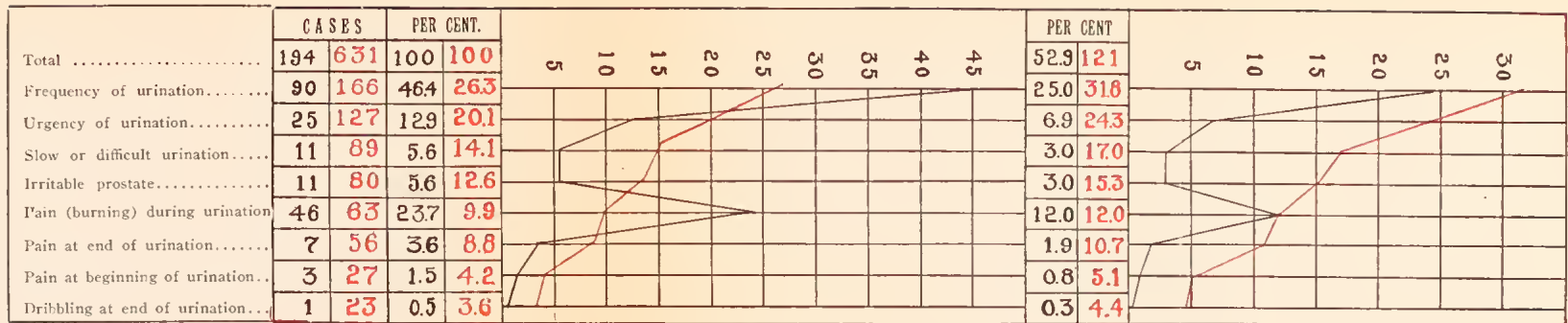


TABLE V.

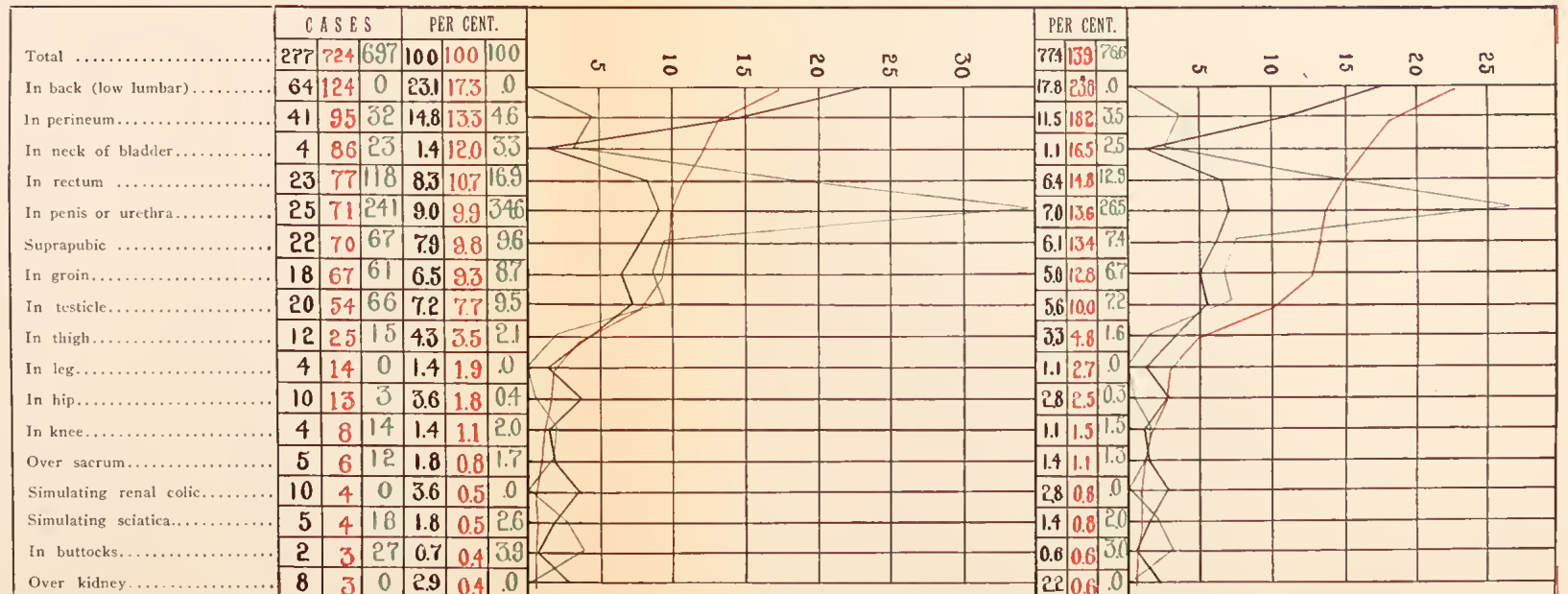
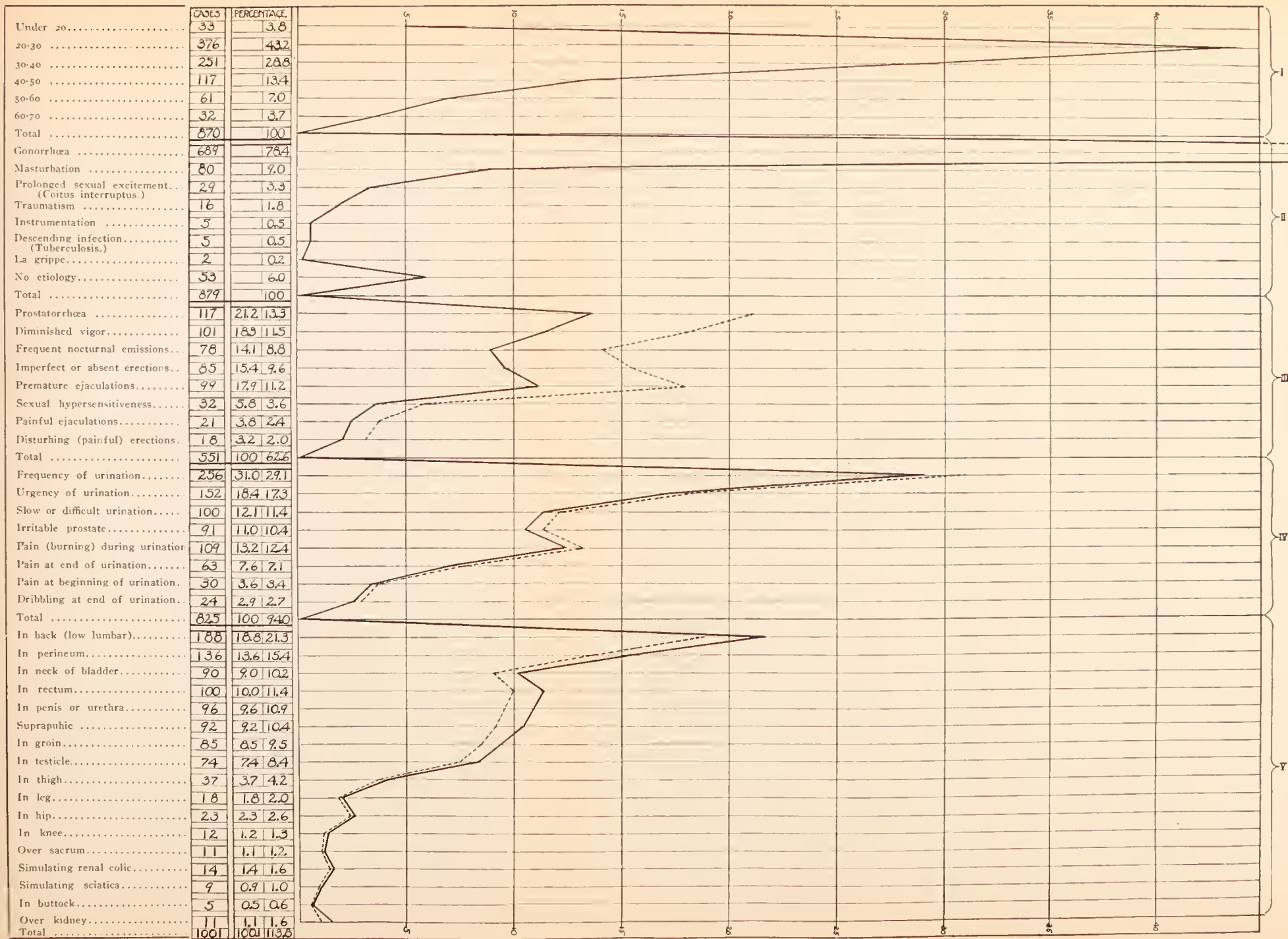


TABLE VII



REPORT OF PERSISTENCE OF URINARY FISTULA IN TWO CASES IN WHICH IT WAS THOUGHT THAT THE WHOLE KIDNEY HAD BEEN RE- MOVED BY NEPHRECTOMY

By F. S. WATSON, M. D., Boston.

CASE I. Subparietal laceration of the right kidney produced by an unusual form of injury. The lower end of the kidney torn from the rest of the organ. Nephrectomy on the sixth day after the accident. Recovery. Subsequent formation of a urinary fistula in the right loin. Ureter removed. Persistence of the urinary discharge. Fecal fistula forms and discharges through the wound. Fecal fistula closed by a third operation; on healing of this wound, urinary fistula also closes, and cure follows this operation.

History. A man of thirty-five years of age fell from a height of twenty feet striking on his hands and knees. The body received no blow. Severe shock, pain and tenderness in the right side of the abdomen followed the accident. The first urine passed contained blood. There was no hematuria subsequently.

Examination three hours after the accident. Marked tension of the abdominal muscles of the right side. Ecchymosis over the middle of the right side of the abdomen and extending to the loin. A tumor of considerable size in the right loin, which had increased rather rapidly in the first hours after the injury.

Diagnosis. Subparietal laceration of the right kidney, probably tearing the organ in two and involving laceration of the renal vein. This condition was conjectured from the absence of hematuria, from the rapidly increasing tumor in the loin, and from the nature of the accident, which was such as to have caused a violent, sudden, forward displacement of the kidney. The kidney is a soft, friable, heavy body attached to a relatively fixed point by the artery which is tough and firm and by the vein which is thin and easily torn. If such a body is suddenly displaced and its attachments as well as itself subjected to the violent strain thus produced, it is probable that either the body itself, or the weaker of its two attachments, or both, will be torn, and this was exactly what was found to have happened when the kidney was seen at the time of operation.

Patient rallied slowly after the injury in spite of the continuance of hemorrhage, which was shown by the gradual increase in the size of the tumor in the loin during the next four days. The temperature was normal until the sixth day, when it rose to 102.5 F. The opposite kidney secreted a sufficient amount of normal urine throughout this time.

Nephrectomy. Dec. 5th, 1907. (On the 5th day after the injury).

The right kidney and an enormous hematoma surrounding it were exposed by a longitudinal abdominal incision parallel with and about an inch outside the linea semilunaris, supplemented by a second cut at right angles to the first extending to the outer border of the quadratus. The peritoneum was not incised, but was stripped from the abdominal parietes and from the front surface of the hematoma. The muscles overlying the latter in front were lacerated in one place and extravasation of blood had taken place into the surrounding area. The hematoma extended from the brim of the pelvis to the diaphragm. It was quickly removed by scooping it away with the hand. Upon exposing the kidney, it was seen that the lower third of the organ, together with the ureter, had been torn from the rest of it. This fragment was not discovered during the operation. The renal artery was intact, but the vein was torn across at the junction of its branches with the main stem. The latter was occupied by a thrombus. The two vessels were clamped and the kidney was cut away from them.

No bleeding took place during the operation. The clamp was left upon the pedicle on account of the critical condition of the patient and was removed on the third day. Drainage was made in the loin and the abdominal wound was closed except for a small space at the outer end of the cross cut, through which drainage was made and the handles of the clamp issued.

Ten days after the operation it was first noticed that urine was being discharged from the drainage opening. Except for the persistence of this fistula, the patient made a good recovery. Six weeks afterward he passed into the hands of my colleague, Dr. Hubbard, who, sometime later, endeavoured to close the urinary

fistula by tying off the ureter close to the bladder. He failed to find any renal substance from which the urine could proceed. The patient recovered from this operation also, but the urine continued to discharge through the loin. A month or two after this, rotation in the service brought him under the care of Dr. Thorndike. During the convalescence from the operation done by Dr. Hubbard, the patient developed a fecal fistula which discharged through the lumbar wound. Dr. Thorndike now did the third operation for the purpose of closing the fecal fistula.

This operation was successful, not only in closing this fistula, but also in arresting the urinary discharge, which had not ceased up to that time. As had happened at the two preceding operations, there was a failure to discover the missing fragment of the kidney in this, the third intervention as well, the arrest of the urinary flow brought about, together with the closure of the fecal fistula, remains unexplained. The interesting features of this case seem to me to be these:

1. The persistence of the urinary fistula. The assumption with regard to the small bit of the kidney that was not removed by the nephrectomy was that it would become necrotic, disintegrate and be discharged through the wound, instead of which, it seemingly was supplied by an aberrant blood vessel which kept it alive and which escaped injury.

2. The spontaneous arrest of hemorrhage by pressure exercised upon the renal vessels and the kidney by the large hematoma and the overlying peritoneum. There are a number of instances in which such a spontaneous arrest of hemorrhage has occurred by this means, or by thrombus formation, and in which one or both the main renal vessels were torn. The laceration of the main stem of the renal blood vessels occurred in twenty-two cases in a series of three hundred and forty lacerated kidneys which I collected some time since. Both vessels were torn in four of these, in three the artery alone, and in the remaining fifteen the vein alone was involved.

3. Ecchymosis is not very frequent in these cases, and when it is present is usually situated in the groin and inner side of the thigh. In this instance it occupied the front and side of the middle of the abdomen. This unusual location was due, I think,

to the fact that the extravasated blood came from the lacerated abdominal muscles.

4. The unusual nature of the accident, which so far as I know, is unique.

5. The absence of hematuria and its significance as indicating either complete disintegration of the kidney, its separation from the ureter or pelvis, tearing across one or another of the latter structures, or plugging of the ureter by a clot.

6. The closure of the urinary fistula which was coincident with the healing of the fecal fistula procured by Dr. Thorndike's operation.

7. The incision which was employed by me for removing the kidney and the hematoma. I have had great satisfaction from the use of the so-called para-peritoneal approach to the kidney in cases of laceration of the organ. This operation avoids the opening of the peritoneal cavity and gives—when supplemented by the right angle incision extending from it to the quadratus—the widest possible avenue of approach. This feature is, I think, a most important one, for it enables one to control the hemorrhage which is often tremendous when the peri-renal accumulation of blood clot is removed and the kidney exposed. The operator needs all the room he can have at this moment. The method has the additional advantage of permitting a thorough examination of the peritoneum and the colon and can be extended into the peritoneum at any moment, if it is seen that intra-peritoneal viscera are also involved in the injury.

CASE II. Solitary, enormous cyst of the left kidney. The following six operations were performed upon the patient.

1. The cyst drained through the abdominal wall. (Dr. Faulkner).

2 and 3. Counter-openings to secure better drainage. (Drs. Faulkner and Watson).

4. Nephrectomy of left kidney and tying cyst off from it. (Dr. Watson).

5. Attempt to close urinary fistula which persisted after nephrectomy. (Dr. Watson).

6. Attempt to close urinary fistula. (Dr. Keyes).

Persistence of urinary fistula after these operations.

History. A man of twenty-three years of age, of athletic habits, who had two attacks of abdominal pain during the preceding two or three years. A third attack closely simulating appendicitis caused his entrance to the Boston City Hospital in October, 1907. Shortly afterward Dr. Faulkner made an exploratory laparotomy incision in the lower right part of the abdomen. He found an enormous single, thin-walled, retro-peritoneal cyst extending entirely across the abdomen and downward into the pelvis. The cyst wall was attached to the abdominal incision, punctured and the cyst evacuated and drained. It contained a large quantity of thin yellow fluid. The cyst was painted interiorly with iodine. Some days later the fluid draining from the incision was found to be urine. About a fortnight after the operation the cyst became infected and the patient began to lose flesh and strength and to have a daily rise of temperature.

The patient came into my hands about this time; a counter opening to improve the drainage of the cyst was made in the opposite loin. Three weeks later a fecal fistula formed and discharged its contents through the cyst and by the original wound. The drainage tube had been withdrawn from the other loin and that incision had closed so that the urine and fecal matter both passed out through the original incision.

Shortly after this two calculi were passed from the right kidney. A radiograph failed to show any other calculi in that kidney or ureter. The urine coming from that kidney was normal not long afterward. The left kidney could be easily felt through the thin abdominal wall. Its position was abnormal, it being near the median line and resting upon the brim of the pelvis. No communication between the cyst and the bladder could be made out.

Nephrectomy of Left Kidney. Examination with a sound passed into the cyst through the opening in its right side, and palpating the left kidney externally at the same time, showed that there was an intimate connection between them.

The kidney was exposed trans-peritoneally by an incision through the left linea semilunaris. It was found to occupy the position already mentioned and was much smaller than normal. Its blood vessels were irregular, there being no main arterial or

venous stem, but small vessels which entered the organ at different points upon its surface. Its lower pole was firmly attached to the cyst wall which apparently originated in the kidney, and was, so far as could be determined, an example of a solitary cyst of the kidney. Its walls were thickened by the inflammatory changes that had taken place in them. The cyst was freed from the kidney as far as possible, and ligated at that point, and cut off from the organ.

The removal of the kidney was exceedingly difficult owing to its abnormal position, to its irregular blood vessels and to the numerous adhesions by which it was bound to the brim of the pelvis. The removal of the cyst itself did not seem to me at that time safe to undertake, nor did I think it probable that it could be done. The condition seemed to be that of a solitary cyst proceeding from the lower pole of the kidney.

The abdominal wound was closed without drainage. Following the removal of the left kidney, the urinary discharge from the fistula of the original operation ceased, and the fecal fistula also closed in the course of the next twelve days.

On the thirteenth day, the nephrectomy wound became infected, owing to the giving way of the ligature which had closed the opening made in it when it was cut away from the kidney. The wound was reopened and drained. A day or two afterward it was seen that urine was flowing from the drainage tube. Suppuration soon became very slight but the urinary fistula established in the new position continued to discharge. The patient's general condition rapidly improved and he gained fifty pounds in weight during the next six months.

In the autumn of 1908, about a year from the time of his first entering the hospital, he returned to me with the request that the effort be made to close the urinary fistula.

Examination showed that the fluid from the bladder and from the cyst both contained pus, very little in the former and variable in amount. The urine from the right kidney showed that it was fully capable functionally. Examination with cystoscope by Dr. Hugh Cabot led him to think that there might be a communication between the bladder and the cyst. Both Dr. Cunningham and I failed to arrive at this conclusion, however,

upon subsequent examinations. Several trials were made by injecting colored fluids into the bladder and again into the cyst, but in no instance did the color pass from the fluid of one to that of the other. The urine from the bladder showed the colour change within the normal time limit, after administering methylene blue, but the urine from the cyst was not colored at all.

A radiograph was taken in the X-ray department of the Boston City Hospital by Dr. Williams, Dr. Cunningham having injected the cyst with bismuth and inserted a styletted ureteral catheter into the right ureter. The right kidney and ureter are seen to be wholly unconnected with the cyst and well removed from its neighborhood. The dark mass is the bismuth injected cyst which had then shrunk to a very small size compared with its original dimensions. The extension from its left side is the drainage tube lying in the fistulous tract, the point at which it joins the cyst being that at which the cyst was cut away from the left kidney. From the above data it seemed clear that a bit of the left kidney must have been still left attached to the cyst and that it was the source of the urine which had been discharged from the cyst since the nephrectomy. It was decided to try to remove what remained of the kidney if it could be found by another operation.

Third Operation. The abdomen was opened through the right linea semilunaris immediately above the cyst, the cyst exposed by dividing the peritoneum overlying it and brought up into the abdominal wound. Its exterior was then carefully examined, a sound being at the same time in the bladder. No connection with the bladder was to be found, nor could anything resembling renal substance be discovered. The cyst was then attached to the abdominal incision and opened. Exploration of its interior resulted as had that of the exterior, in finding nothing that was susceptible of being removed or attacked with prospect of benefit to the patient. Drainage was therefore made through the new and more direct opening, and the former fistulous opening soon afterward closed.



EDITORIAL

THE TREATMENT OF URETHRAL STRICTURES BY THE GENERAL PRACTITIONER

THERE is no subject that touches more closely the daily work of the urologist than the treatment of strictures of the urethra, and it was most opportune that the present status of the entire question was admirably discussed at the January meeting of the New York Society of the American Urological Association. At this meeting papers were read upon the operative as well as the non-operative treatment of strictures and it was interesting to note, during the ensuing discussion, that the whole theme seemed to cleave naturally into three different viewpoints:—That of the urologist; that of the general surgeon, and that of the general practitioner.

The physician in general practice was until recently taught that a stricture is a condition of the urethra which necessarily gives rise to symptoms, such as a narrow or distorted stream, or more or less difficulty in urination. This point was strongly emphasized by Dr. V. C. Pedersen, the reader of one of the papers of the evening,* who pointed out very justly how this antiquated teaching had prevented the timely treatment of many cases of stricture long before the condition had advanced to a marked degree. To use a “medical” illustration, waiting for the urinary symptoms of a stricture is very much like waiting for cavity formation in the lungs before making a diagnosis of tuberculosis.

The need of educating the practitioner in the early diagnosis of stricture, and in the simple methods of treatment by dilatation, is apparent to all urologists who have met with deplorable instances of neglect from lack of this education. It was with this need, among other needs, in view that we began in our last issue, to print a series of articles designed especially for the general practitioner, in a special department of this Journal. The more thoroughly the practitioner under-

*Published in this issue.

stands the general principles of urethral instrumentation, and the fundamentals of the treatment of strictures early in their development, the fewer cases of urinary retention, urinary extravasation, and ascending infection will come to the operating table, while the autopsy table will also be robbed of one of its sources of supply.

SOME STRICTURES UPON THE GENERAL SURGEON

A UROLOGIST of the younger school, made the statement, at the meeting referred to in the preceding paragraph, that "the general surgeons are the natural enemies of the urologists." This remark was made in the light, semi-humorous fashion which often serves to convey a grain of truth in a coating of pleasantry, and none of the general surgeons present took offence at the imputation which it carried. In his further remarks the speaker went on to explain that what he meant was the unfortunate tendency of the general surgeon to invade all special surgical fields, regardless of the fact as to whether or not he had the necessary experience and training for a proper appreciation of the possibilities of non-operative treatment.

The only fault we can find with this view is that it fails to make a distinction between a "surgeon" and an "operator." We have, in America, a number of great general surgeons. The trouble is, however, that we also have an altogether too numerous army of "operators" who are indistinguishable except to the initiated. The difference between these two classes of men is too well understood to need comment here. The "operators" of to-day are the unfortunate products of the great rise of surgery witnessed during the past quarter of a century,—a period during which many of the younger men who had neither the brains nor the training requisite for qualifying as general surgeons in the full sense of the word, mastered the mechanical side of their art.

It is the "operators" as distinct from the true surgeons, who are responsible in great part for the revulsion against workmanlike but indiscriminate surgery which is making itself manifest now, not only among the remainder of the profession,

but among the lay public as well. It is not uncommon, these days, to have patients neglect themselves because they fear to consult a "surgeon" who at the very first will recommend an operation.

To many patients the word "stricture" still suggests bloody procedures, the very thought of which makes them timid at the sight of the white-gowned high-priest of the knife. The fate of the patients who neglect themselves on account of this fear should be placed to the account of those "operators" whose ideal in life seems to be a short cut through human flesh to affluence.

EXTERNAL VERSUS INTERNAL URETHROTOMY

OPERATIONS upon strictures as a routine method of treatment are unhesitatingly condemned by all urologists, and in fact, by all general surgeons who are masters of their craft, in the true sense of the word. Nevertheless it is the urologist, or at least the surgeon who has had special experience in genito-urinary surgery, who is the best judge of the indications for an operation for a urethral stricture. In the vast majority of cases, even in *so-called* "impassable" stricture, dilatation is not only possible but preferable. In the few cases in which dilatation will not serve, i. e. chiefly in certain deep seated, dense, and unyielding strictures, the choice of an operation is between internal and external urethrotomy. Although this was not a view shared by all the speakers at the meeting referred to, internal urethrotomy is the less desirable operation of the two. Indeed, the internal incision should not be employed (save in combination with the external) in any stricture more than five inches distant from the meatus. In strictures further back the danger of hemorrhage and of other complications are far greater than with the external method. The latter, if properly performed is not a dangerous one, although it is a far more difficult procedure technically and one that makes the patient bedridden much longer than the internal operation. The best rule is to think twice before operating at all on any stricture, and to think three times before choosing the often treacherous but seemingly easy internal urethrotomy.

REVIEW OF CURRENT UROLOGIC LITERATURE

[In this Department it is intended to publish abstracts of the original articles appearing in the four principal special journals devoted to urology: *Folia Urologica*; *Zeitschrift für Urologie*; *Annales des Maladies des Organes Génito-Urinaires*, and *Annales des Maladies Vénériennes*. In addition, this Department will contain abstracts of all important urologic articles appearing in other foreign and in American medical journals.]

FOLIA UROLOGICA

October, 1909

1. The Inflammatory Pathogenesis and Histogenesis of Prostatic Hypertrophy: A reply to Criticism Against the Inflammatory Etiology of Prostatic Hypertrophy. By Alfred Rothschild, Berlin.

2. Clinical Notes on 420 Cases of Urinary Surgery. By Roberto Binoghi, Cagliari.

3. Congenital Strictures of the Male Urethra. By Joseph Englich, Vienna. (To be Concluded.)

4. On Pyelitis. By H. Felecki, Budapesth.

1. INFLAMMATORY ORIGIN OF PROSTATIC HYPERTROPHY: Rothschild demonstrates that inflammatory changes are found in hypertrophied prostates without any infection in the urine. In the glandular substance these lesions consist of catarrhal changes, proliferation, desquamation of epithelia, less frequently, pus in the acini. In the stroma of the gland there are proliferations of round cells, around the glandular elements, or else cicatricial foci, or both varieties of lesions. The lumen of the glandular elements is often found dilated, in some cases, this dilatation constituting veritable cyst-formation. The author and Ciechanowski have been able to demonstrate all these lesions clearly in very thin microscopic sections, studied in series, and conclude from this study that prostatic hypertrophy in most instances is an essentially inflammatory process. The enlargement of the gland is the result chiefly of a dilatation of the lumina of the glandular elements, and this dilatation, in turn, is the result of the accumulation of secretion due to the catarrhal process, owing to the contraction or obliteration of the excretory ducts, particularly of the principal prostatic ducts, by the pressure of the periglandular and paraglandular inflammatory foci.

The more abundant the glandular structures of a hypertrophied prostate are initially—and this varies greatly according to the individual—the more intensely is the effect of dilatation of the glandular elements upon the shape and size of the prostate. There is no actual increase in the substance of the prostate as would be the case in a

neoplastic growth. It is possible that a functional hyperplasia of the glandular substance takes place, in order to compensate for the loss of glandular tissue which is entailed in the obliteration of the excretory ducts.

In the second part of the article, Rothschild answers the criticisms against the views just expressed. In his opinion, the objections put forth have not been able to contravert the theory of an inflammatory etiology of prostatic hypertrophy. The objections of Brunner, Rovsing, and Goldberg, are clinical, based upon absolute theories of the pathogenesis of prostatic hypertrophy and prostatitis. The objections of Rovsing and Casper are theoretically correct, but are based upon the results of inflammations of glands in general, and do not take into account the important point of Rothschild's observations; namely, the mechanical effect of the interstitial inflammatory foci referred to in the preceding paragraph. The objections of other critics (von Frisch and Goldberg), that the material was selected, are unfounded. The criticism of observers, such as Albarran, Motz, etc., based upon microscopic studies, are answered by the fact that exceedingly thin sections of the prostate must be studied to get true relations, as thick sections give the impression of neoplastic proliferation.

In the third portion of the work, Rothschild summarizes the changes in prostatic hypertrophy as occurring in three types: (1) The most frequent form is the chronic inflammatory retention-hypertrophy described above. (2) A rare form is of neoplastic character, the most frequent of which is a carcinomatous tumor formation, while myoma and adenoma are less often found. (3) A mixed form, also rare, consists of a combination of the first two types. The results of the treatment of prostatic hypertrophy are in complete accord with the views expressed by Rothschild, and the recurrences of hypertrophy after prostatectomy are also accounted for upon the basis of the "phlogistic" theory.

2. STATISTICS OF 420 OPERATIONS UPON THE URINARY ORGANS: Binaghi summarizes his personal experience in 420 operative cases. There were ten deaths, a mortality of 2.3 per cent. The operations were distributed as follows: There were 34 operations on the kidneys; 48 on the bladder; 20 upon the prostate, and 318 upon the urethra. The following conclusions were drawn by the author from his observations:

In *movable kidney*, the indication for nephropexy should be based upon the presence of important symptoms, and not upon the degree of mobility of the organ. In *renal tuberculosis*, total nephrectomy should be the operation of choice, and the results are best in cases in which the diagnosis and the operation occur early in the disease. The diagnosis should include all the functional tests. In *stone*

in the bladder, the suprapubic operation is the method of choice in all cases. In *prostatic hypertrophy* the transvesical method is to be preferred, the two main causes of mortality, hemorrhage and infection, not being regarded as dreadful in these days of improved technique. Internal urethrotomy is the operation of preference in gonorrheal *strictures of the urethra*. Excision of strictures followed by an autoplasmic operation is required only in impassable strictures with complications, in which internal urethrotomy is followed by early recurrence.

4. PYELITIS: Felecki points out that primary inflammation of the pelvis without any involvement of other organs is very rare, and that usually the kidney itself is more or less involved when pyelitis exists. Yet clinically, we should distinguish between pyelitis and pyelonephritis. The former may be cured completely without any symptoms of renal involvement appearing during the entire course of the disease. The origin of pyelitis is always infectious, either ascending or hematogenous. Such factors as stone, traumatism, urinary obstruction, and changes in the circulation due to tumors, pregnancy, etc., and changes in metabolism, intoxication, etc., are all to be regarded merely as favoring infection, and not as direct causes of pyelitis.

The ascending type of infection is caused either by a mechanical propulsion of the germs through the medium of the urine, or else as an ascent by continuity from below upward, of the lesions in the lining of the urinary tract. The latter, for example, is the case in gonorrheal pyelitis. In this connection, it should not be forgotten that the vesical trigone is not only a continuation of the urethra, but an integral part of the ureters.

As regards the *diagnosis* of pyelitis, ureteral catheterization offers the only satisfactory method. Functional tests of the kidney should always be applied in order to determine the condition of these organs. Gonococci were found by the author in urine from the pelvis in cases of gonorrheal pyelitis.

In speaking of *treatment*, Felecki points out that some cases can be cured by internal medication. Urinary antiseptics, an abundance of fluids, and an appropriate diet are the chief factors in such a treatment. If there is retention of urine the pelvis should be evacuated by means of the ureteral catheter which in case of necessity may be allowed to remain *in situ* for a considerable time. Lavage of the renal pelvis, or instillations into the pelvis through the ureteral catheter are of value in some cases of pyelitis, especially in those of gonorrheal origin. The solutions recommended are those of silver nitrate from 1:4000 to 1:1000 in gonorrheal cases, and of mercuric oxycyanide, 1:4000 in *Bacillus Coli* infections. Irrigations of the pelvis are contraindicated in the presence of calculi, tuberculosis and pyelonephritis, and when all these measures fail, the question of an operation must be considered.

ZEITSCHRIFT FÜR UROLOGIE

Vol. IV., No. 1, 1910

1. The Bladder in Bilharzia-Infection, and the Relation of Bilbarziasis to Urolithiasis. By William Ebstein, Göttingen.

2. Experimental Contributions to the Question of the Isolation of the Ureters. By T. L. Kobylinski, St. Petersburg.

3. On Pyelitis. By Dr. Kapsammer, Vienna.

1. **BILHARZIA-INFECTION AND STONE:** Ebstein contributes an interesting article upon the rare condition of infection with *Bilharzia hematobia* and its relation to the formation of calculi. Two colored plates illustrate the article. The incentive for the present study was an article by E. Pfister, of Cairo, who reported a case of stone in a subject of Bilharziasis. Ebstein published the only observation of a similar character to be found in any text book dealing with urinary stones, in his work on calculi, published in 1884, at Wiesbaden. The changes which take place in the bladder in Bilharzia disease show great variations, but in all cases in which the bladder is affected (i. e., in about 33 per cent. of all autopsies in Egypt, according to Griesinger), there are nodules in the bladder which consist of accumulations of the ova of *Distomum hematobium*. In the mild cases these irregular nodules are few and small in number, but in the advanced cases, the excrescences are larger and look like hemorrhoidal tumors, or like villi or fungi. In such cases, bladder calculi are usually found, the nuclei of which consist in residual shells of the ova of *Distomum*. In the most severe cases, the bladder is greatly contracted and the entire mucosa is either rough and fissured or is covered with fungoid or villous formation. Not infrequently there are some places in which ulceration is noted, and such bladders may rupture with the formation of perineal, or more rarely of vesico-rectal fistulæ. The walls of these bladders are filled with masses of the ova of the parasite, so that nuclei for the formation of stones exist even in the bladder walls proper. An example of this was the small oxalate stone which Ebstein described in his book, a case reported to him by Alphonse Bilharz. Such intraparietal stones may grow larger, break through the vesical epithelium and grow to form larger bladder calculi. Masses of ova of the parasite and their shells may also form the nuclei for stones, while sessile upon the mucous membrane. In Pfister's case a polyp of the bladder wall, due to a collection of ova, was the center of the calculous formation. Bilharz pointed out, as early as 1860, that the true etiological factor for the numerous calculi found in Egypt was the *Distomum hematobium*. Ebstein was able to demonstrate the ova of the parasite in four out of eight stones which had been sent to him from Egypt.

2. EXPERIMENTS WITH ISOLATED URETERS: Kobylinski, in an experimental study upon animals, sought to determine the influence upon the function of the ureter and the corresponding kidney in cases in which portions of the ureters had been isolated, denuded of peritoneum, etc. In most operations upon the ureter, especially transplantations, a certain segment of the canal is denuded of peritoneum. Furthermore, in other operations in the neighborhood of the ureter, the latter is often isolated, as for example, in removing tumors in the transperitoneal space. The question arises as to whether the isolation and denudation of the ureter have any material influence upon the function of the canal of the corresponding kidney. This question is answered in the negative so far as the author's animal experiments demonstrate. The macroscopical as well as microscopical examination of the ureters and kidneys in the animals experimented upon, did not show any marked differences between the isolated and the intact ureters and between the corresponding kidneys. These excellent results in the removal of such a delicate organ as the ureter out of its normal position were attributed by the author to the rich supply of bloodvessels and nerves, which the ureter enjoys.

3. PYELITIS: Kapsammer, in a report to the 16th International Medical Congress at Budapest on the subject of pyelitis, draws the following deductions: Pyelitis, as such, without involvement of the renal parenchyma is an affection which can be diagnosticated only post-mortem. Hematogenous infection is the ordinary etiology of pyelonephritis, and the most common, although not the only etiologic agent thereof is the *Bacterium coli*. We should distinguish between (1) primary pyonephrosis in which the purulent process precedes the dilatation of the pelvis. The ureter is usually narrow, shortened, in such cases, and there is no compensatory hypertrophy of the other kidney, and (2), secondary pyonephrosis, in which the dilatation of the pelvis occurs first, the ureter being usually widened and lengthened, while the other kidney commonly undergoes compensatory hypertrophy. The false teaching that infection was usually ascending and the therapeutic nihilism which was so prevalent formerly, may be ascribed to the circumstance that in chronic types of pyelonephritis there were no symptoms on the part of the pus sac, and that the secondary bladder symptoms usually occupied the foreground. Attacks of colic with vesical tenesmus are usually characteristic of acute ureteral obstruction, while attacks of colic without vesical tenesmus are characteristic of acute tension of the capsules. An accurate diagnosis can be based only upon ureteral catheterization, but even then, we can get information only as regards the side affected. As regards the severity of the disease and the extent of the involvement of the renal parenchyma, we must rely upon the modern methods of functional renal diagnosis.

The treatment can be carried out with the aid of the ureteral catheter, yet the latter should not be indiscriminately used without an accurate knowledge of the condition of the kidney. Irrigations of the pelvis should be employed only in subacute and chronic cases, while instillations be reserved for the acute cases. In employing these forms of treatment, it is very important first to be sure to remove all the urine from the pelvis and also to be certain that the eye of the catheter is at the very outlet of the pelvis. Catheters with multiple eyes are useful for this purpose. In order to make sure that there is no residual urine in the pelvis of the kidney, one can press upon the abdomen or compress the pelvis bimanually, when the flow from the catheter is seen to increase. In conclusion, the author makes a plea for the establishment of additional urological clinics such as that of the Necker Hospital in Paris, where the question of the diagnosis and treatment of urinary infections can be adequately studied.

ANNALES DES MALADIES GÉNITO-URINAIRES

Vol. II., No. 24, December, 1909

1. Unilateral Fused Kidney. By E. Papin and Palazzoli, of the Necker Hospital, Paris. (Continued.)

(This article will be abstracted after the last instalment of it has appeared.)

ANNALES DES MALADIES VÉNÉRIENNES

December, 1909

1. A Case of Successive Indurated Multiple Giant Chancres of the Abdomen. By P. A. Pawloff, Moscow.

2. Hypertrophic Cicatrices following Acne-like Follicular Syphilides. By Giacomo Define, Naples.

3. Mercurial Saturation. By Baldomero Sommer, Buenos Aires.

4. Chronic Infectious Spleno-megalic Jaundice in a Heredo-syphilitic. By Edmond Fournier, Paris.

5. Multiple Syphilitic Chancres. A Study of the Wassermann Reaction. Date of Appearance of the Reaction of Immunity. Influence of Treatment. By C. Fouquet and E. Joltrain, Paris.

1. GIANT MULTIPLE CHANCRES OF THE ABDOMEN: Pawloff describes a case of chancres observed in the Moscow Military Hospital, which is interesting on account of several unusual features. The patient was a soldier, aged twenty-three, who three weeks after coitus developed small ulcerations upon the penis, the pubis and also small itching pustules upon the lower part of the abdomen. There were five typical primary sores with parchment induration upon the genital regions, but in addition, there were about twenty ulcerations about the size of a penny each, with rounded outline, upon the suprapubic region.

Some of these erosions were isolated, while others tended to become confluent. Most of them were flat with thin brownish crusts, but a few still showed flat pustules which were quite intact and filled with greenish pus. Upon the removal of the crusts and the pus, the lesions were found to be flat ulcers with dark red bases. Mercurial treatment was instituted and the genital ulcerations began to heal. The suprapubic ulcerations, however, grew confluent and many of them showed a distinct induration. Finally, the isolated ulcerations became united in a very large typical indurated chancre with a scalloped irregular outline, measuring 4 by 9 centimetres. The other ulcerations of the lower abdomen, 9 in number, all exhibited the typical characters of indurated chancres. Chancres of the abdomen are quite rare, occurring in about 2 per cent. of cases, or even in a little over 1 per cent., according to Fournier. In the case presented, a further unusual feature was the multiplicity of the lesions, there being seventeen indurated chancres. Other interesting points were the large size of the giant chancre, and the successive development of the different lesions in groups. The probability was that the additional chancres of the lower abdomen were the results of autoinoculation.

2. HYPERTROPHIC SCARS FOLLOWING ACNEIFORM SYPHILIDES: Define contributes a clinical and pathological study of a case of acneiform syphilides, in which hypertrophic cicatrices occurred. The papules and pustules first appeared eight months after the infection. On examination two years after infection, the lesions on the skin were found to be whitish, disseminated macules, consisting of cicatricial formations slightly prominent and usually connected with hair follicles. The scars stood out clearly against the patient's dark skin and varied from the size of the head of a pin to that of a lentil. They were slightly umbilicated where the hair entered and occurred in groups of distinct scars, irregularly arranged over the trunk and the extremities. Histologically, they proved to be true cicatrices, i. e., transformations of the skin into fibrous tissue. The lesions are interesting on account of their rarity.

NEW METHOD OF RELIEF OF RENAL COLIC: Dr. Bransford Lewis, St. Louis (*Journal A. M. A.*, January 29), gives an account of a case of right sided renal colic in a woman aged twenty-five, resisting treatment, from one-half to three-fourths grain of morphin only giving relief for an hour or two, and sleep being reduced to about one or two hours in the twenty-four. The patient was not strong enough for operative treatment and something had to be done at once. She was therefore placed on the cystoscopic table, a catheter was passed into the right renal pelvis and 20 minims of a 1 per cent. solution of alypin injected. The pain was relieved in fifteen minutes, the catheter was withdrawn and the woman had the first good sleep she had had

for several days and nights. The colic returned again the next day with lessened severity, and 15 minims of a 1 per cent. solution of alypin were injected with the same good effects. The catheter was left in the ureter and secured by adhesive plaster, emerging from the urethra and draining into a vessel between the thighs, and the nurse was instructed to inject 10 minims of the alypin solution whenever the pain recurred. This had always the desired effect, and after three days the crisis seemed to be over and the catheter was removed, all menacing conditions having disappeared. Later, exploratory nephrotomy was performed, and recovery ensued. Lewis has not seen this treatment reported by anyone else. It was easily applied and without objections on the part of the patient who was highly in favor of it after experiencing the relief it afforded. The release from pain seemed to have a good effect on the renal secretion which increased from 15 ounces during the painful period to 35 or 40 ounces. The alypin caused no depression or other bad effect.

GONOCOCCUS SERUM AND BACTERIN: Dr. E. A. Thomas (*J. A. M. A.*, January 22), says that there can be no doubt as to the value of one or both of these agents in the treatment of gonorrhea and its sequels. While he still makes it a practice to determine the opsonic index in the treatment, he is becoming more and more convinced that it is not necessary and he is therefore governed almost entirely by the clinical symptoms. He emphasizes the necessity of progression in doses, beginning with the minimum and steadily increasing until tolerance is established. Repeated small doses at long regular intervals and too frequent inoculations of too large doses may both cause harm by inducing hypersusceptibility. The best results he thinks are obtained by the use of autogenous vaccines, and stock preparations should only be employed when the others are impracticable. When he has used stock vaccines he employed those standardized in the William Pepper Laboratory of Medicine at the University of Pennsylvania. While the bacterins may retain their potency for a considerable period, his experience has shown the best results when they were used fresh and prepared every two to four weeks. He has never seen the slightest good results from pyocyaneus bacterins and would discourage their manufacture.

ASCENDING INFECTION OF THE URINARY TRACT: E Nohl (*Medizinische Klinik*, Oct. 3, 1909, page 1510), thinks that in examinations of urine, especially with the microscope, one is apt to draw erroneous conclusions, and in support of this idea cites some illustrative cases. While all textbooks insist on the great value of microscopical examination of urinary sediment, nobody thinks of warning against contamination of the urine from external sources. Admixtures of pus, etc., from the vulva

are very frequently met with, so that in every case in which a few leucocytes are found, one is not justified in making a diagnosis of cystitis or pyelitis, but must carefully examine the vulvar secretion. The use of the catheter is indicated in such cases. In children, vulvar irritation or discharge is frequently the source of pus in the urine.

In two cases reported by the author, there were pus cells and a trace of albumin, but no casts in the urine of children suffering from what apparently was German measles. The urinary symptoms disappeared with the fading of the eruption. The catheter was not used in either case. In a third case reported by the author, there was anorexia, headache and slight pain in the abdomen upon passing urine. The patient was a little girl whose urine showed pus cells, albumin and numerous cocci and bacilli. The diagnosis of a subacute pyelitis was made, and the small amount of pus in the urine persisted. On catheterizing with a sterile catheter, however, no pus was found. The pus cells were derived from the vulva from the start, and on examination, the external genitals were found red and covered with secretion. The fourth and fifth cases were analogous to the third. In the sixth case, a little girl, aged eight years, was regarded as a case of chronic pyelitis, possibly tuberculous, and had been kept in bed for five months, owing to the suspicion of an ascending renal infection, until the examination of vulvar secretion showed that the pus came from the external genitals. In this case there were colicky pains in the renal region and fever; but these symptoms were apparently dependent to a large extent upon constipation. In a seventh case, a little girl aged two years, had become very markedly anemic, dyspeptic and showed pus and hyaline casts in the urine. The catheterized specimen showed only casts and no pus, and the latter was found to come from the vulva. In case 8, there was a scarcely perceptible discharge from a vulva which appeared normal, and yet there was pus in the urine. While cystitis and pyelitis must be thought of as possibilities in obscure febrile conditions in children and young girls, the admixture of pus in the urine from the vulva must always be excluded, even in cases in which the parts look perfectly nor-

mal. It is possible that a vulvitis, which is apparently innocent, may be the cause of an ascending renal infection.

THE TREATMENT OF SYPHILIS BY MEANS OF INHALATIONS THROUGH A MASK: Kromayer (*Monatshefte f. prakt. Dermatol.*, Vol. 46, No. 10), bases his treatment upon the fact that mercury is absorbed by the lungs during the inunction treatment, and has constructed a mask worn either at night or during the day, with the aid of which mercury can be inhaled. He claims that with this treatment more prompt effects are produced than with the inunction treatment, yet that the method of inhalation is not as prompt as the method with injections of mercury salicylate. The author controlled his results with examinations of the urine and concludes that the action of mercury is not only dependent upon the quantity absorbed, but upon the rate of absorption and excretion. Gradual absorption and excretion give the best results. The inhalation treatment is convenient and can be interrupted at any time, should toxic symptoms arise.

GONORRHEA IN LITTLE GIRLS: Scheuer (*Wien. klin. Woch.*, 1909, No. 18) reports 39 cases of gonorrhea in little girls. In 15 cases the urethra was involved. In no case was he able subsequently to determine any involvement of the pelvic peritoneum or annexa. Treatment consisted in rest in bed and sitz-baths. The vagina was washed out three times a day, with 0.5 to 2 per cent. protargol solution or with a 0.1 per cent. ichthyol preparation. In treating the urethritis he employed thin protargol bougies. The course of the disease was usually found to be chronic, and in many cases a cure was not obtained until after three months of treatment.

THE ELECTRIC TREATMENT OF GENITAL DISEASES: Ferdinand Winkler (*Monatshefte f. prakt. Dermatol.*, Vol. 47, No. 3) employs the constrictor property of Franklinization and the dilator property of Arsonvalization in the treatment of genital diseases. He also favors the use of electrolysis for the application of medicinal substances to tissues. Thus, he cured chancroids and suppurating buboes by immersing the zinc pole into a 1 per cent. solution of zinc chloride and allowed it to act for half an hour, after connecting it with the positive pole.

In the treatment of gonorrhea Winkler also employs silver or copper *ions* according to the age and seat of the disease. He introduces a sound-like electrode made of silver or of copper into the urethra and connects it with the positive pole. The parts should be previously anesthetized. The treatment is followed by the use of high frequency currents. By the use of silver *ions*, he claims to attain a penetrating action which cannot be secured by means of irrigation. In prostatitis, the author recommends the faradic current, or else the Leduc current, which is a frequently interrupted low tension galvanic current. The author also employs electricity in the treatment of gonorrheal epididymitis and recommends this method highly. In acute cases, he employs Franklinization with high frequency currents, as well as galvanization. In chronic cases, cataphoresis with the introduction of quinine at the positive pole gives exceedingly good results. The quinine *ion* is claimed to be of value in the treatment of gonorrheal rheumatism. For the electric treatment, quinine bisulphate is used, while internally quinine hydrochlorate may also be given.

THE DIAGNOSIS AND TREATMENT OF PROSTATIC HYPERTROPHY: P. Wulff, of Hamburg (*Med. Klinik*, 1909, No. 41, page 1547), believes that, in spite of the fact that much has been written recently concerning prostatic hypertrophy, we are still lacking in clear and definite principles in the treatment of this disease. Some are still completely opposed to operations, while others say that every prostatic who has been using the catheter for any length of time must be operated upon. Both extremes are wrong, and both conservative and operative treatment have their indications. After reviewing the etiology and symptomatology of prostatic hypertrophy, Wulff speaks particularly of the difficulties in diagnosis which present themselves in this condition. Rectal examination does not offer the definite information which might be expected. Not only are there hypertrophies of the middle lobe alone and enlargements which cannot be felt by rectum, owing to their moderate degree, but there are also difficulties in recognizing even hypertrophy of moderate degree, and much practice is needed in rectal palpation, in order to become expert enough to recognize

the majority of hypertrophies. The cases of marked hypertrophy are naturally easily detected. The diagnosis should depend, first, upon the presence of residual urine, second, on the exclusion of nervous diseases, and finally a rectal examination which also enables us to differentiate between hypertrophy and the presence of tumors or tuberculosis. Cystoscopy is rarely necessary, save in those cases in which there is no residual urine. After the diagnosis of hypertrophy has been made the surgeon should always examine for the presence of stone in the bladder by means of a sound.

Aside from the treatment for acute retention when this is present, the systematic use of catheters, and general hygienic and dietetic measures, there is but little to be done in the way on nonsurgical treatment. Many remedies have been recommended, including suppositories of potassium iodide and ichthyol, mineral waters, etc., but most of these have only a psychological effect. Massage and electricity also have practically no objective value. In some cases the introduction of large metallic sounds may be of value in the very early stages.

The chief element in the nonsurgical treatment is naturally the so-called "catheter life." Patients often express the fear that they can never get rid of the catheter after they once have begun using it. This may be true; yet, when one remembers the great improvement that follows the proper use of the catheter in many cases, the patient may console himself that he is not quite so badly off after all. Patients who have more than 150 cc. of residual urine daily may use the catheter once a day, provided they do not suffer from vesical tenesmus or discomfort in the meantime. If vesical tenesmus is felt sooner after catheterization, say within six hours, the catheter must be used more frequently. In patients who have from 150 to 200 cc. of residual urine, yet remain free from discomfort, it will suffice to empty the bladder every four to eight weeks, so as to see whether the residuum is increasing. If the residuum is very small, 30 to 40 c., and if there are no symptoms, no treatment is necessary. To prevent cystitis, it is well to irrigate the bladder with weak antiseptic solutions once or twice a week, especially if the urine becomes clouded. Internally urotropin or salol may be given as a prophylactic. When cystitis has de-

veloped, it should be treated according to well recognized principles.

Complicated cases, in which there are suppurative processes, require surgical treatment. If stones are present, they should be removed with the aid of the lithotrite, exceptionally by the suprapubic method. In case of severe bleeding, a catheter à demeure must be introduced, and the bladder washed repeatedly.

As regards the operation, the indications are chiefly the presence of infection, difficulty or impossibility in the use of the catheter, hemorrhages and severe tenesmus which cannot be overcome by other means. Prostatectomy is the only operation to be considered. The so-called sexual operation and the Bottini method are of doubtful value. In a series of nine cases operated upon by the author under spinal anesthesia, there were no deaths. He considers the removal of the entire prostate as a simple operation, which offers sure recovery provided the patient survives the operation.

THE ENERGETIC AND POSSIBLY ABORTIVE TREATMENT OF SYPHILIS: M. H. Hallopeaux outlines the following method of treatment in syphilis: (*Gazette des Hopitaux*, 1909, p. 1099). Just as soon as the diagnosis of the chancre has been made, a vigorous local and general treatment should be at once instituted with the purpose of trying to abort the disease or at least to diminish its intensity markedly. Locally, an ointment containing 30 per cent. of crystallized atoxyl should be employed, being kept permanently upon the sore, but without covering the neighboring parts so as to avoid a too great absorption of the drug. Daily injections of small doses of atoxyl into the tissues surrounding the chancre should also be made in doses of 10 cgm. to destroy the spirocheta and to avoid the spread of the infection. The local injections of atoxyl or of hectin should be given at first daily until the close of the period of secondary incubation. This treatment often suffices to prevent the swelling of the glands and the development of the rash. In addition, a general treatment is vigorously begun by means of mercury and potassium iodide, preferably in the form of injections of soluble salts of mercury into the buttocks. The author favors the use of daily doses of 2 cgm. of mercury ben-

zoate for 40 days at the beginning of the disease, and mentions two cases in which this treatment seems to have aborted the disease in one patient and considerably diminished the intensity of the disease in another.

The irritant action of mercury benzoate may be lessened by adding to the solution 10 per cent. of glucose or saccharose and diluting the dose with 4 cc. of boiling water. Intravenous injections of mercuric cyanide may also be used instead of the intramuscular injections.

In addition to this local and constitutional treatment, Hallopeaux gives potassium iodide in daily doses of from 1 to 2 grams. The sooner this complex treatment is instituted, the better in his opinion are the chances for aborting or lessening the intensity of the disease.

RENAL TUBERCULOSIS: Barthélemy Guisy, of Athens (*XVI International Medical Congress*, Budapest, 1909, Section on Urology, 1, page 50), summarizes his study of this subject in the following manner: Renal tuberculosis is more frequent in men than in women, and is most often seen in persons between the ages of 17 and 40. It is the result of the action of the tubercle bacillus upon the renal parenchyma, whether or not there be histologically specific lesions. Renal tuberculosis comes next after peritoneal tuberculosis in point of frequency.

In the great majority of cases, tuberculosis of the kidneys is of circulatory origin, and is primary, so far as the other genito-urinary organs are concerned. The possibility of an ascending tuberculosis must be assumed, so long as its existence cannot be disproved, yet this type should be considered as quite exceptional. The lymphatic channels do not seem to play an important rôle in the tuberculous infection of the kidney. In exceptional cases, infection by contiguity (tuberculous perinephritis; tuberculous caries of the ribs or spine) has been observed by Pousson and others.

The principal symptoms of the early period of hematogenous renal tuberculosis are lumbar pains, which may be continuous or intermittent, with or without radiation, towards the epigastrium, the inguinal region, the opposite kidney, the ureters or the testicles in men and the labia in women; furthermore, more or less profuse hematurias, continuous or intermittent at very

long intervals; polyuria and vesical tenesmus more or less subdued in character. The renovesical reflex may produce in children and in young adults spasm of the ureter and a temporary retention of urine, or conditions which interfere with the introduction of exploratory instruments.

When a pyuria is present in the early stages of renal tuberculosis, it consists merely in the presence of a few leukocytes which can be detected only with the microscope. This is a period of transition between the prodromal stage and the stage of development. It is difficult to convince ourselves that this microscopical pyuria is not the result of some residual cystitis or of some incompletely cured urethral infection.

EXTERNAL URETHROTOMY: C. Posner (*Berl. klin. Woch.*, April 19, 1909) believes that when the surgeon, in performing the operation of external urethrotomy, fails to find the posterior end of the urethra, it is wiser to adopt an expectant treatment and not to perform retrograde catheterization by the suprapubic method, provided that no retention of urine is present. He bases this opinion on the experience which he has made, and gives the details of a case in support of the same. This case illustrates the difficulty which may present itself when the central end of the urethra has to be sought among the cicatricial fistulous tissue surrounding a complicated stricture. External urethrotomy, without a guide in the shape of a sound passed into the bladder, becomes immensely difficult under these circumstances. Usually, the central end can be found in time, but, in the meantime, the patient has to be kept under the anesthetic, and it can happen that the surgeon does not feel justified in prolonging the operation. In the case in point the patient was febrile, weak, and in great pain. Urine was only passed in drops, and the perineum was riddled with scars, and the subcutaneous tissue as far as the gluteal region was suppurating as a result of repeated operative interference. After having sought for the central end of the urethra for about an hour and a half, Posner was obliged to give up the search. He was then faced with the question what to do next. The objections to suprapubic lithotomy were that this meant a second severe operative undertaking, the technic when the bladder cannot be filled before is difficult, retrograde

catheterization is never easy, and, lastly, the operation necessitates a prolonged lying-up afterwards. He therefore determined to leave the patient for a time and watch him closely. The worst that could happen was that the urine would not pass through the fresh wound. Within a few hours the patient passed urine, for the most part through the wound, but also through the urethra. Later, more and more urine passed naturally. After seven days Posner was able to pass a fliform catheter, after all fever had cleared off. Later on, the stricture was dilated up to 19 or 20 French, and the patient left the hospital five weeks after the operation cured, with healed fistulæ.

TOTAL EXTIRPATION OF THE BLADDER: Béla von Rihmer (*XVI International Medical Congress*, Budapest, 1909, No. 1, page 131), presented a report on this subject to the International Medical Congress, based upon a study of 59 cases reported in literature as well as in personal communications. On the basis of his study, he summarizes the present status of total extirpation of the bladder in the following conclusions: The total extirpation of the bladder for new growths is a procedure which finds its justification chiefly in the failure of other more conservative methods. Total extirpation of the bladder is a severe operation, the chief point of which lies in the provision made for the ureters. The immediate as well as the subsequent results depend upon this point.

For this reason, the ureters should be taken care of at a preliminary separate operation. Unfortunately, there is no safe method whereby the ureters can be transplanted without great inconvenience (dribbling, the carrying of a urinal, an artificial anus) nor whereby safety is assured against ascending infection. Inasmuch as patients with tumors of the bladder when left alone frequently die of ascending infection more rapidly than of metastases, the total extirpation of the bladder is indicated in certain cases in spite of the imperfection of the methods available. The indications for total extirpation, as contrasted with those of extensive resection of bladder wall, must needs be limited. Well circumscribed tumors should be removed by extensive resection on the bladder, followed by implantation of the ureters into the remainder of the bladder.

Broadly infiltrating cancers of the entire bladder wall, cancers of prostatic origin, should be treated palliatively, if need be, with cystostomy, implantation of the ureters into the flexure, or lumbar ureterostomy. Metastases are the rule in these cases. Cases suitable for total extirpation occur between these two groups, especially when the trigone and the ureteral mouths are affected.

THE RESULTS OF TREATMENT IN EXSTROPHY OF THE BLADDER: E. Estor, of Montpellier (*XVI International Medical Congress*, Budapest, 1909, Section on Urology), formulates the following conclusions as a result of his study of the various methods of surgical treatment in exstrophy of the bladder: None of the methods thus far proposed give a perfectly satisfactory result. The methods which aim at a reconstruction of the bladder by autoplasty or by suturing its margins should be abandoned, because they do not cure urinary incontinence. Among the numerous procedures for the deviation of the course of the urine, there are two which give good results as regards incontinence. These are the methods of Maydl and of Soubbotine. Maydl's method consists in deviating the urinary stream into the rectum and thus substituting the anal sphincter for the vesical. Soubbotine's method differs from Maydl's because he uses a direct anastomosis of the bladder with the rectum, without making use of the ureters and also because Soubbotine completely separates the urine from the feces. The cases thus far published, which have been operated on by these methods are not yet numerous enough to enable one to draw definite conclusions as to the value of each of these procedures. The following opinions may, however, be expressed: Soubbotine's method protects the urinary apparatus against ascending infection more efficiently than that of Maydl. On the other hand, Soubbotine's method is more complex and requires prolonged after-treatment, thus being inferior to Maydl's. In order to appreciate the results obtained by these two methods, patients must be followed for several years; for it is possible that at first there might be sufficient tonicity in the anal sphincter, while later on, there could be more or less incontinence.

THE GENERAL PRACTITIONER'S DEPARTMENT

THE EQUIPMENT OF THE GENERAL PRACTITIONER FOR THE TREATMENT OF GENITO-URINARY DISEASES.*

III.

How to Keep Silk-Woven Instruments

In very hot weather the instruments should be kept from gumming by means of talcum freely sprinkled upon them. In moderate climates, however, this is unnecessary, provided the instruments be kept in a cool place, and be perfectly dry when they are put away. After using they should be always washed with soap and warm water, taking care to wash away all traces of lubricant. If they have a lumen (as, silk woven catheters), they should be carefully flushed out with warm water. The instruments then should be thoroughly dried by rubbing briskly with a soft towel. If they have a lumen they should be hung up to drain and dry or should be dried with a current of compressed air from a throat spray tank, after they have been dried outside. Oily lubricants should never be used on these instruments, but this is a point to be considered in another issue.

Flexible woven instruments are best preserved after they have been thoroughly cleaned and dried, in special glass tubes, closed with stoppers in which are receptacles for trioxymethylene tablets (formaldehyd vapors.) (Fig. 2.)

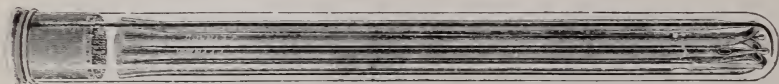


FIG. 2. TUBE FOR KEEPING BOUGIES, ETC.

When a large number of instruments of this class is to be kept at hand, the tubes may be set up in what is known as a catheterostat, as

* Continued from the February issue.



FIG. 3.

shown in the accompanying figure (Fig. 3), in which six such tubes are supported upon a stand. These tubes can of course be used for all classes of catheters, bougies, etc. A catheterostat combining the features of a stand and of a single tube for bougies and catheters is perhaps more suitable for a man in general practice, and is shown in Fig. 4.

Here the formaldehyd generating tablets are placed in the bottom receptacle, the instruments hang down into the tube and are held in position by a perforated metal plate under the glass stopper.

One point regarding the keeping of flexible urethral instruments may be mentioned here: These instruments keep very well, if they are properly handled, and are initially of the best quality. They keep rather better when they are used more or less constantly. When not used they are more apt to deteriorate. For this reason it is best for the practitioner to supply himself only with the most necessary of these instruments. We shall try to indicate, as

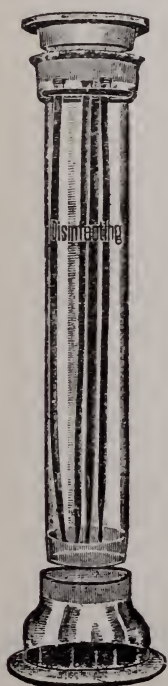


FIG. 4.

we speak of each class of these bougies and catheters, the most useful sizes to be bought, and the number needed in ordinary work. Specialists must keep several of each of the commonly used sizes on hand, and must have a wide assortment, including all varieties of these instruments, but even specialists, in the larger cities, prefer to carry a comparatively small stock of flexible instruments, as the proper sizes can be easily replaced at short notice, by the instrument dealers.

Flexible Bougies à Boule

To return now to the description of *bougies à boule*. We have seen the limitations of the metallic bougies. Practitioners who are doing a fair amount of genito-urinary work will do well to supply themselves with a small assortment (one of each size, or even one of every alternate size), of silk woven *bougies à boule*.

The accompanying figure (Fig. 5) shows the most useful type of exploring flexible bougies (Guyon's) and the numbers indicate eight of the most useful sizes.

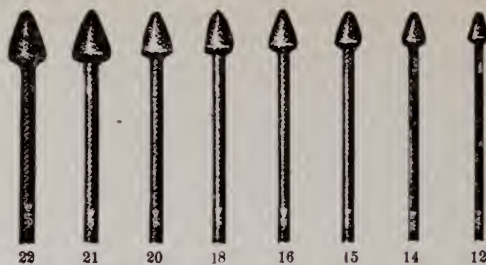


FIG. 5

It will be noted that these bougies have acorn-shaped ends. The utility of this lies in the ease with which narrow bridges or prominences of urethral tissue can be localized, the "shoulder" of the acorn, or its widest part measures the size indicated on the distal end of the bougie. The length of the thinner, flexible shaft need not exceed thirty-three centimeters, but it should be sufficient to reach the bladder if need be. These flexible bougies are of especial value in detecting deeply situated strictures and in exploring regions in front and behind structured areas in cases in which metallic instrument might cause much pain owing to the sensitive condition of the urethra.

Flexible Olivary Bougies

These are used not so much for exploration as for treatment of strictures by progressive dilatation. In many respects they are the ideal dilating instruments. The usual rule to follow is that all strictures which do not admit an instrument of a caliber of 20 F. should be treated with olive-pointed flexible bougies, and that metallic sounds should be used for dilatation only after number 20 has been reached. Some surgeons lay it down as a rule that a general practitioner should never attempt to use too large instruments, and that a stricture into which a specialist is able to pass a No. 20 F. instrument is ordinarily one into which a general practitioner rightly does not attempt to pass more than No. 18 F. This is a fairly good statement of actual conditions. The olive-pointed flexible woven bougies which the practitioner need have at hand, therefore, practically need not be higher than 18 or 20 F. in size. Numbers from 4 to 18 are the most useful. The smaller numbers will rarely be required by the general practitioner, as



FIG. 6

they are really next to the filiform bougies (see next paragraph) in size and are useful only in strictures of very small caliber. If the practi-

tioner, therefore, has each size from 18 F. down to 9 (*i.e.* 10 sizes) and then a No. 7 and No. 5, he will have the most useful dozen of the olivary bougies. The olive is about seven sizes smaller than the largest diameter of the shaft of these instruments, when they are properly made. The shaft tapers gradually to the narrower neck, which is about one-half the diameter of the olive in the best instruments of this type. These rules hold good for the larger sizes under 18 F.; in the smaller sizes of the set the olive is naturally less and less prominent. An olive-tipped dilating instrument, it may be said here, is of value because after the olive has "sprung" the obstruction, it always makes a smoother way for the entrance of the gradually widening shaft.

The accompanying figure (Fig. 6) shows the proper shape of an olive-tipped flexible bougie, made of the finest silk. These bougies are also made hollow and filled with lead or fine shot, but the general practitioner will not require this special refinement in his work.

Conical bougies are of no particular advantage, and are not used extensively at present. They are the same as the olive-tipped instruments, save that they end in a straight tapering, blunt extremity, instead of an olive.

Filiform Whalebone Bougies

The general practitioner will require a few whalebone filiform bougies for emergencies if he is so located that he cannot have a specialist or a hospital at his command. These are the thinnest urethral instruments made, and consist of well smoothed and polished, slightly tapering or cylindrical pieces of whalebone. They correspond in size to Nos. 2 and 3 of the French scale, *i.e.*, are from one-third to two-thirds millimeters in diameter. The end of the best quality of filiforms has a very minute olive, and is either straight or bent at an angle or is twisted in the shape of a spiral. These different shapes are useful in entering difficult and very narrow strictures with eccentric openings. A good assortment of filiforms consist of a half dozen, two straight, two coudé (elbowed), and two spiral. The accompanying figure (Fig. 7) shows the various shapes most frequently used.

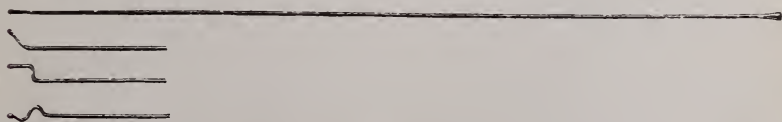


FIG. 7.

Larger whalebone bougies, Nos. 4, 5, 6 and 7, are also made, but are not of great value to the practitioner, as he can use the smallest silk-woven bougies in preference to these stiffer, whalebone instruments, when sizes 4, 5, etc., can enter.

Whalebone bougies or "filiforms" date from the early part of

the nineteenth century. They are indispensable in cases of retention of urine due to tight strictures that do not admit larger instruments, and should therefore be kept ready for use for emergencies. They are sterilized by formalin fumes like the silk woven instruments. After using they should be thoroughly washed, dried, and smeared with carbolyzed petrolatum. They are best kept in narrow metallic tubes with well fitting screw caps.

Other Varieties of Filiform Bougies

Filiform bougies are also made in Paris, of the finest silk web, coated with specially resistant and durable varnish. Sizes 1, 2, 3, 4, 5 and 6, comprise the set and the differently shaped ends can be obtained in this quality, which is more expensive than the whalebone bougies. In passing, it may be said that American filiform bougies of whalebone are as good as those made of the same material in France,—in fact the whalebone used by Parisian makers comes from America. Filiform bougies are also made by at least one French manufacturer of “cat-gut” coated with varnish, and another form of the same instruments are the Bazy filiforms of malleable metal, coated, which can be bent into any desired shape at the end.

Guide for Filiform Bougies

A useful instrument in connection with the filiform bougies is a “filiform guide.” This consists of a catheter of silk web with an open end which is either blunt (Fig. 8) or olive-shaped. The guide is



FIG. 8.

passed down to the face of a stricture and a number of filiform bougies are introduced into it. Each is manipulated in turn till one of them finally enters the minute opening of the stricture. The details of this work will be given in another issue. The guides come in sizes 7 F. to 10 F. It is easy to manufacture such a guide in an emergency by cutting off the closed end of a suitable catheter.

THE HISTORY OF CATHETERS.

CATHETERIZATION is one of the oldest surgical procedures known. No one can say just when man first used a hollow instrument to draw off urine, but in all probability, straight and hollow reels, polished smooth and lubricated with oil were the first catheters used. Celsus was the first to speak of *curved* metallic (copper) pipes, and to speak of

the manner in which these were to be used in removing urine from the bladder. A catheter unearthed at Pompeii, is described by Gouley as made of copper or bronze, with a sigmoid curve, and a single rectangular eye situated, not on the side, but upon the inner aspect of the curve. This instrument was of the caliber known as 10 French and was 30 centimeters in length.

The word catheter was used by Hippocrates to signify any solid tent or dilator intended for the treatment of fistulae in infected wounds, etc. Later the Roman writers employed the word catheter synonymously with *fistula* or *syringa*, a tube or pipe, as a designation for a hollow instrument of the kind found at Pompeii.

UROLOGIC BREVITIES

A good way to give prolonged urethral injections (lasting fifteen minutes) is to fill the urethra with the solution, allowing the fluid to be retained for five minutes; then letting the fluid out, and repeating the injection with fresh solution, to be retained five minutes. The solution is then allowed to escape and the process repeated with a fresh portion for five minutes more. This method has the advantage of preventing unduly prolonged strain upon the sphincter and thus avoiding possible entrance of fluid into the posterior urethra.

Remember that in dilating strictures with progressively increasing sizes of instruments the safest way is to introduce at each treatment a sound or bougie of the size already used at the previous treatment, and then only to replace this smaller size by the next larger instrument. Never increase more than one or two numbers at each sitting.

The best time to pass sounds and other urethral dilating instruments is in the evening, when the patient can go home and rest, instead of continuing to go about his daily work.

The "penetrating action" of silver salts, which is so frequently praised, is not needed in the posterior urethra as much as in the anterior. In the posterior urethra silver nitrate acts better than in the anterior, while in the latter the newer silver salts are to be preferred, as being more penetrating.

A periurethral fistula, or a paraurethral infected glandular pocket will prevent recovery from chronic urethritis and is always an open

door for a reinfection. Cure all such complications thoroughly before you dismiss your patient for better or for worse.

Urethroscopy is worthless except in the hands of a man who knows what he sees when he sees it.

Even an expert can tell very little by looking through a urethroscopic tube of a calibre less than 26 F. The best results for anterior urethroscopy are obtained with a tube 28 F. or larger.

The success of Gram's stain depends on (1) a thin smear uniformly spread; (2) an over-staining with a freshly prepared anilin gentian violet solution; (3) a decolorization which is not too prolonged to take the dye out of the Gram positives; (4) under-staining with a dilute contrast stain.

Never use a sound roughened by frequent boiling or rusty from neglect. Avoid rusting by wiping sounds dry while they are hot.

The injection of a single drop of a 10 per cent. silver nitrate solution into the fossa navicularis has aborted a number of cases of gonorrhœal infection when used within twenty-four hours after the first sign of moisture at the meatus.

Do not hope to cure a chronic gonorrhea as long as the patient has a pin-point meatus or a long tight foreskin, for these are the two great handicaps in the race to recovery.

By keeping a urethral injection in the canal for fifteen minutes or longer, the effect on the gonococci is greatly enhanced. Injections squirted in and squirted out at once have practically no effect.

Gram's stain is difficult to apply to shreds, because the smears are uneven, and often dense. Spread the shreds very thinly, and select the thinnest shreds obtainable. Do not take lumpy, thick parts. Thin epithelial shreds from the posterior urethra show gonococci better than any other shreds, when these germs are present.

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THE DIAGNOSIS OF ESSENTIAL HEMATURIA*

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IN a paper with this heading it is unnecessary to deal with the ordinary causes of kidney hemorrhage, since they are excluded by the title. Tuberculosis, tumor, calculus, movable kidney, *Bilharzia haematobia*, etc., etc., may all cause hemorrhage, but they do not give rise to that particular form of bleeding designated, for want of a better name, as "essential." With reference to the hematuria caused by the *Bilharzia* parasite, it may be well to call attention to the fact that this parasite is now found in the United States, brought here by immigrants and travelers, and we may reasonably expect that an increasing number of such cases will be reported. Dismissing these general causes with these few words, we may now turn to the consideration of our subject proper.

The blood-stream is brought very close to the urinary stream in at least four situations in the kidney: First, in the glomeruli; second, around the convoluted tubules; third, at the papillae; and fourth, at the mucous lining of the pelvis.

It may seem an unnecessary refinement of diagnosis to attempt to locate hemorrhage from one or the other of these sources, but a careful study of our cases will at least enable us to make some progress in that direction. We may not go so far as to claim that in a given case we can determine that source No. I is at fault rather than No. II, or that No. III is the bleeding point rather than No. IV, but under favorable cir-

* Read before the Nevada State Medical Society, Goldfield, October 5, 1909.

cumstances we may say that the source is in No. I or No. II rather than in No. III or in No. IV or vice versa. It will be observed that Sources No. I and II are within the kidney proper and there the blood from these sources first mixes with urine in the uriniferous tubules, while sources III and IV are in relation with the kidney pelvis, and blood coming from these locations gains entrance directly into the pelvis. Sources I and II are beyond the influence of local medication, but sources III and IV may be reached, and temporarily or permanently controlled by topical applications.

If an astringent or hemostatic be injected into the renal pelvis through a ureteral catheter, the effect would be manifest upon the surface of the pelvic mucous membrane, including the papillae, and should the bleeding-point be in one or another of the capillary plexuses in relation with the pelvis, the hemorrhage would be controlled or modified. Should the bleeding points lie within the kidney substance, in capillary plexuses No. I or II, then local hemostatic agents would presumably have no effect, since the points are beyond possible direct reach. If, then, we found that such applications controlled the hemorrhage, we might reasonably conclude that we had to do with pelvic or papillary lesions, while on the other hand, if the bleeding were uninfluenced by the applications, the location of the lesions would probably be in regions I or II within the kidney substance; i. e., beyond the influence of local measures.

Information bearing upon this point perhaps may be obtained in another manner. It is well known that sufficiently extensive local lesions within the secreting substance of the kidney impair the functional activity of that kidney, even though there may be normal portions of kidney substance remaining, and it is equally obvious that a purely pelvic lesion has no direct reducing effect upon the functional capacity of the kidney, since it no way compromises the activity of the secreting elements. Let us suppose now, that in our investigations we have determined that the functional capacity of the bleeding organ is reduced below that of its fellow; we may conclude from this that the lesions are within the kidney sub-

stance, and hence in capillary regions No. I and No. II; while, on the other hand, should we find that the affected kidney is actually normal in its secreting function, then the lesions are probably in the pelvis in regions III or IV.

This may appear theoretical, but if our reasoning is correct the information to be gained by the study of the source of the hematuria is of sufficient importance to compel us to attempt the investigation. So far as I am aware, no one has heretofore gone quite so minutely into the differentiation of these conditions. Dr. Hugh Young, of Johns Hopkins University, has reported a case in which he had injected adrenalin into the renal pelvis for its possible curative effect, and probably others have followed his example, but if this method has been adopted for localizing the bleeding, this point has not come to my notice. In some of the cases to be reported a partial attempt was made to avail myself of this method.

A number of articles on "essential hematuria" have appeared in the medical literature during the past few years, and we are gradually acquiring a much more definite knowledge of the pathology of this condition. It is very much to be regretted that so many cases have been reported in which no histological examinations of the offending organ have been made, for in the final determination of the underlying cause or causes of the hemorrhage, reports of cases without a histological examination are of no value. It is only by careful microscöpic study of specimens that the truth can be learned.

Briefly summarized, our knoweldge of the causes of this condition seems to be about as follows:

I. *Nephritis*. (a) It is quite generally accepted at the present time that *interstitial nephritis* may be a one-sided affection, due, not to a general toxemia, as in the case of Bright's disease, but to a locally acting infection, traumatism, or congestion. One of the symptoms of this form of nephritis may be hemorrhage, which may be slight, abundant, but intermittent, or constant. This claim was first advanced by De Keersmaecker in 1897, and has since been confirmed by numerous observers. Not all of the cases reported are entirely acceptable, but this condition undoubtedly exists. Chute, of

Boston, has written a careful review of this subject, and has reported an illustrative case. It is possible that one of my cases may fall under this heading.

(b). A sufficient number of cases have been reported to establish the fact that the earliest recognizable symptom of a *general diffuse nephritis* may be a hematuria which is sometimes very profuse, resulting in anemia and depletion to such degree that surgical interference is demanded.

2. *Non-Inflammatory Lesions of the Cortical Capillary Plexuses.* In the May, 1909, number of *Annals of Surgery*, Schwyzer, of St. Paul, Minn., reports a very interesting series of five cases of unilateral hematuria with careful histological examinations of specimens. In none of them were any interstitial changes visible, but the lesions seemed to be located either in the glomeruli or within the convoluted tubules, or, as appears from the report of one or two cases, in both regions. The cases were characterized by rather profuse hematuria, with or without pain. In two cases the hemorrhages were evidently due to ureteral calculi, while in the other instances congestion and hemorrhage seemed to have been brought on by exercise or jolting. The results of nephrotomy in each case was complete recovery and freedom from all symptoms. Careful examination of the urine failed to show any subsequent tendency to bilateral or unilateral nephritis.

3. *Renal Papillary Varix.* Fenwick was the first to call attention to the existence of a hematuria due to a lesion of the venous plexus about a kidney papilla. Since his report several operators have reported similar cases and in the above-mentioned number of *Annals of Surgery*, Pilcher, of Brooklyn, has recorded two personal cases in which this condition was present, mentioned other cases, and discussed the rationale of cure by nephrotomy in an interesting manner. Additional cases have been reported by other surgeons. One of the cases reported below I have tentatively placed in this category.

4. *Pyelitis Cystica.* Several cases of bleeding have been reported which seem to be due to inflammatory changes in the mucous membrane of the renal pelvis. Haynes, of New York, recently reported such a case in which the diagnosis was con-

firmed by a microscopic examination of the removed organ. In this instance, however, in addition to the pelvic changes from which the hemorrhages evidently arose, there were also evidences of productive nephritis, and to this pathological modification some of the hemorrhage might be attributed.

5. *Angeio-Neurotic Hemorrhage.* In the literature there are reported five or six cases that have been most carefully examined by competent pathologists in which, after the most painstaking search, no visible cause could be found for the hemorrhage, and these cases we may classify under the above heading. It is possible that further investigations may show that demonstrable lesions existed in these cases, but were overlooked. However, when we remember that angeio-neurotic edema is a well recognized condition, it seems but reasonable to conclude that a somewhat similar nerve derangement, acting upon the vessels of the kidney, might produce, instead of an edema, a hemorrhage into the open tubules.

The following histories of two cases of renal hematuria may be of interest, as in a measure illustrating some of the points that I have sought to emphasize:

I. F. C., male, age 37, consulted me on April 28, 1908. Family history negative, except that his father died of cancer of stomach at an advanced age. Personal history: Had pneumonia at age of 27, perfect recovery. Has had several attacks of urethritis, the last one twelve years ago, during which attack he had acute retention and was catheterized. He recovered and remained well until the onset of his present illness, which began on February 7, 1907. Three days before he had lifted a heavy weight, but no immediate symptoms had followed. The bloody urine was noticed in the morning on arising and was unaccompanied by pain. This hemorrhage soon ceased, but three months later it returned and has been practically continuous up to the present time. The patient states that the amount of blood is greater after exercise, but there is no pain associated with the urinary act, nor is there any increased frequency. A few days following the second onset of hematuria pain was noted in the right loin and this has been present up to the time of examination. It is dull and heavy in character, not radiating, but is sometimes felt in the anterior abdominal region. Three months after the pain was noted on the right side (i. e., about eight months ago), a similar though less severe pain was noted in the left

lumbar region, which has remained with more or less constancy. There are no urinary symptoms except the presence of blood. His weight is 148 pounds, not having changed in the last fourteen months.

On examination his general appearance was that of great enfeeblement, but there was no decided cachexia. Heart normal. Abdominal palpation: No tumor could be made out. An indistinct sensation of mass was given to the fingers in the left renal region, but pressure elicited no pain. Pressure over the right kidney from behind gave slight indistinct pain. Sexual organs, including prostate, were normal. Urine was black with blood.

Repeated cystoscopic examinations showed the bladder to be normal, except an anemic mucosa. The urine collected by simultaneous ureteral catheterization gave:

Right Side—Urine clear, acid, no albumin. Microscope showed many epithelial cells, cylindroids and a few hyaline casts. Cryoscopy gave freezing point— 0.175° C.

Left Side—Urine bloody, acid, albumin present. Microscope: epithelial cells, cylindroids, hyaline and granular casts, and a few epithelial cells. Cryoscopy gave freezing point— 0.157° C.

These findings were repeatedly confirmed. It appeared that we had to deal with a left-sided renal hemorrhage due to interstitial nephritis. There was some evidence which pointed to a low grade of nephritis in the right kidney also. The patient was in such an enfeebled condition from hemorrhage, and was being so constantly drained of blood, that an operation was decided upon, and on May 28, 1908, the left kidney was removed. Prompt operative recovery followed. The general health of the patient rapidly improved, the urine became clear and was secreted in normal amount. Several subsequent examinations were made, some of which showed a trace of albumin and a few hyaline casts; at other times the urine was normal. The patient returned to the country and has been attending to his work. A letter received a few days ago states that he is feeling well and has had no further hemorrhage. I have been unable to obtain his urine for examination. The report of Professor Ophuls upon the removed kidney gave a diagnosis of mild intestinal nephritis, no actively bleeding points were noted.

It would seem that this case properly belongs in the classification of general nephritis, the earliest symptom of which was profuse, one-sided bleeding. The hyaline casts that were found in the urine after the operation, together with the presence of minute amounts of albumin, indicate that the remaining

kidney was undergoing interstitial changes. A careful watch should be kept over the patient, and the ultimate result obtained and recorded.

II. Mr. R.; Age 46; Occupation, cement overseer. Sent to me by Doctor Craig, Aug. 9, 1909. Family history good. Had typhoid fever 20 years ago; perfect recovery. Has been a rather free drinker, but not to great excess. He was well up to three years ago, at which time the present trouble began. Without other symptoms the urine was discovered to be bloody. There was no pain and no urinary frequency. The hemorrhage continued for three weeks and then disappeared. The patient remained perfectly well and normal until May, 1909, when symptomless bleeding returned and has remained to the present time.

On examination the patient was found well nourished, weight 174 pounds, no noticeable anemia, although the urine has been almost continuously bloody for three months. Chest, heart and lungs normal. Blood pressure 114. No atheroma of vessels. Abdomen: palpation absolutely negative. Urine very bloody. Cystoscope: Bladder normal, ureteral orifices normal, but bloody jets escape from the left. Ureter catheters introduced and separate urines collected. Examination showed:

Right Side—Urine clear, pale amber, no albumen, no sugar. Microscope: a few red blood corpuscles (probably traumatic), no casts, no pus, no bacteria.

Left Side—Urine turbid, reddish, blood clots in bottom of vessel, albumin, no sugar, no casts, no bacteria.

Indigo-carmin injected during the time catheters were in place gave positive reaction on both sides in twenty-one minutes. (This rather delayed reaction is explained by the fact that only a half dose of the coloring matter was used.) Cryoscopy was not used. Guinea pig injections were made with the two urines and upon examining the animal—a month later—no tuberculosis was found. An X-ray examination was made of the urinary tract, but no stone shadows were recorded. The kidney shadows were normal in size and position.

In considering this case one would at once think of tumor as a cause, but it would seem reasonable to believe that if the hemorrhage were due to tumor, in the more than three years that have elapsed since the first bleeding was noted, the tumor would have increased to a size that would make it palpable, and would increase or distort the kidney X-ray shadow.

Such, however, was not the case. A calculus was ruled out by the lack of symptoms and the negative X-ray findings. Tuberculosis was also ruled out by negative microscopic findings and negative animal findings. Without going further into the general differential diagnosis, it would seem that we have to deal with a case of so-called essential hematuria. The fact that no casts were found in the urine, no bacteria, and that the heart and vessel findings were negative, would seem to exclude nephritis, either general or one-sided. In the one test made it appears that the function of both kidneys is normal, which means that probably no lesion is located within the kidney substance. The absence of infection at any time, the patient never having had venereal disease, and no bacteria appearing in the urine, would go far toward excluding pyelitis as a possible cause. We are left then with a renal varix as the most probable lesion, and this is my tentative conclusion in this case. The general health of the patient is so good, the depleting effects of the hemorrhage so slight, that I have advised for the present against operative measures; further observation may make indications plainer. In the meantime, the patient has been placed upon expectant treatment, with instructions to report occasionally.

The whole subject of essential renal hematuria is studied at the present time more carefully than ever before, and it is highly probable that our knowledge of to-day will be rapidly increased. Cases properly falling under this classification are not of such frequent occurrence as to afford any one man a large number for observation, but if each of us will carefully observe his few individual cases, we may in the end contribute materially to the elucidation of the many problems yet to be solved in connection with this theme.

REPORT OF A CASE OF ACUTE FULMINATING GANGRENE OF THE PENIS AND SCROTUM, WITH KNOWN PORT OF ENTRY, ENDING FATALLY

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GANGRENE of the penis is not an uncommon condition. It may be caused by mechanical compression, torsion, contusion, freezing. It may be seen in a great variety of general conditions: Typhoid, variola, syphilis, diabetes, alcoholism, malaria, ergot, cantharides. It may be secondary to chancroid, chancre, herpes, balanitis. It is also favored by phimosis and paraphimosis.

We next come to a series of cases in which no local or general causal elements are demonstrable and in which the disease runs a severe and fulminating course extending freely and causing great destruction, but not necessarily tending to fatal results. These may be classed under the head of acute fulminating gangrene of Fournier, the lymphatic gangrene and the gangrenous erysipelas of various writers. This may begin either on the penis or scrotum, and in either case tends to involve the other part. While seemingly distinct processes they blend into each other and Kaufman goes as far as to believe they are the same. In these cases the severe constitutional symptoms supervene as soon as, and in some cases even in advance of, the local mischief. The victims are chiefly young men, ages twenty to thirty, and as stated by Petit and Merklen¹ their general condition is good; there is no diabetes, syphilis, etc., the majority had recently indulged in coitus, some the evening before the beginning of the symptoms. In a small number of cases coitus could be excluded.

Few of these cases end fatally, and there has not been found any known port of entry for the inoculation with the exception of the following cases, which did have a definite port of entry and which ended fatally: Demarquay² reports a

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case following circumcision; French³ reports a case following puncture of hydrocele and quotes Trousseau as mentioning a case in Nelaton's service in which gangrenous erysipelas followed a trifling incision into the frenum; Thirias⁴ reports a case following puncture of hydrocele. With the exception of these four cases I have not been able to find any which, as stated, had a definite port of entry and ended fatally.

Report of Case

The patient J. H. age 34, foreman in nickel plate factory. No previous venereal history. During intercourse with his wife, while dressed, on February 13, 1909, he tore the frenum on her garter buckle. He consulted Dr. C. J. Carr, February 15, who found the frenum torn, prepuce edematous and swollen and prescribed ichthyol ointment. Prepuce at that time could be easily retracted and glans was clean.

February 16, all the skin of the penis was swollen and deep red in color, and patient complained of great pain.

February 17, a grayish, white spot appeared on the skin of the penis, about half way back; temperature 104.

February 18, grayish, white spot had increased in size; patient complained of great pain. Orchitis on left side; temperature 104.

I saw him with Dr. Carr on the 19th. At this time his temperature was 105.5, pulse 120. The penis and scrotum were much enlarged. The gangrenous or dirty white surface had spread so that about one-fourth of the integument of penis was involved. The remaining skin was liver-like in color. There was an orchitis on both sides at this time. A marked odor was noticeable. He was sent to Lexington Heights Hospital. The scrotum was found to be weeping as in eczema with formation of vesicles.

February 20. Urine showed no sugar, trace of albumen, with granular, epithelial and blood casts; absence of chlorides and trace of bile. On the site of the vesicles on the scrotum gangrenous spots appeared. There was a redness spreading over both groins but no enlargement of the glands. Temperature 102.6.

February 21. Dr. Norman MacLeod prepared vaccine of which fifty million was injected. Gangrenous spots spreading on the scrotum. Temperature 105.4.

February 23, temperature 105.7. Patient died.

The dividing line between the white and red surfaces was as clear cut as if made by a knife. The red surface was raised about one-sixteenth of an inch.



The pathological specimen was examined by Dr. Bentz, who reported streptococci in large numbers and he was unable to find the bacillus of Ducrey.

Since this case occurred a most excellent article by Corbus and Harris⁵ has shed more light on the subject. They agree with Scherber and Muller "that there is regularly found a micro-organism (vibrio) which they consider the cause of the disease. In addition to this organism there is constantly present a Gram-negative spirochete." Not knowing of this micro-organism at the time, we were unable to verify it in our case, but from the description and clinical symptoms I believe that examination would have shown its presence.

Treatment

Antiseptic washes were used without any effect whatever. Some authors have advised the use of actual cautery as the

only effectual method. Corbus and Harris state that we have a specific in hydrogen peroxide. The organism (*vibrio*) being anaerobic, and as hydrogen peroxide liberates oxygen when in contact with organic matter, it acts as a specific for this form of infection. They advise the use of two percent. strength, but in severe cases of gangrene they paint the surface with a twenty-five per cent. solution. I regret that we did not try it, but apparently it seemed to be such a mild antiseptic for so severe a case, that it was overlooked.

1. Gazette des Hôpitaux, Aug. 12, 1899.
2. Archives gén. de Méd. 1870, Vol. XV, p. 513.
3. Minn. Med. Soc. 1887, p. 86.
4. Ann. Soc. Belge de Chir. 1893, 1, p. 237.
5. The Journal of A. M. A. May 8, 1909.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

THE INFLUENCE OF THE OPERATION OF RESECTION OF THE KIDNEY UPON THE FUNCTION OF THE ORGAN. A. WHEN THE KIDNEY WOUND IS CLOSED BY SUTURES. B. WHEN THE KIDNEY WOUND IS DRAINED (A) BY A RUBBER TUBE. (B) BY GAUZE.

(A Preliminary Report of Experimental Work on Rabbits, from the Laboratory of Surgical Research, Harvard Medical School.)

By JOHN H. CUNNINGHAM, JR., M. D., Boston

THE experimental work which forms the basis of this communication was suggested by an operation upon a young lady with but a single kidney, which kidney contained calculi. The kidney was exposed in the lumbar region; split in Brödel's line, and three calculi of medium size removed. Another calculus the size of a pea was also detected in the ureter at a point two inches from the pelvic outlet. This stone was worked upward into the kidney pelvis, the pelvis opened on the posterior surface and the stone removed. A ureteral sound was passed through the ureter to the bladder to establish its patency. The incision in the pelvis was closed with fine silk. The wound in the kidney substance was closed without drainage with mattress

sutures of catgut. The external wound was closed without drainage. The patient was catheterized immediately following the operation, and about 1 oz. of slightly bloody urine withdrawn. There was some fear entertained that the kidney might not secrete following the operation, and to determine this the patient was catheterized one hour after the operation, and every subsequent half hour. No urine could be obtained from the bladder by catheterization until eight and one-half hours after operation. At that time a little more than 1 drachm of slightly bloody urine was obtained. Catheterization one hour later showed a little less than 1 oz. of clear urine and the catheterization one hour later (10½ hours after operation) showed a little over 1 oz. of an almost clear urine. From that time on, the urine flowed in fair amounts, showing no further diminution of activity of the kidney function.

The question which presents itself in connection with this operation and the accompanying temporary arrest of the kidney function is "Does a kidney which is subjected to an operation, temporarily cease functioning?"

All are familiar with the ideas regarding reflex anuria. The subject here under consideration is not the same, inasmuch as we are dealing with a single diseased kidney at the outset. It may be, however, that the arrest of the kidney function in the case referred to, finds its explanation in the same influences as reflex anuria, when one kidney is operated upon and the other diseased. Whether or not an operation upon one kidney while the other is healthy, results in a temporary arrest of the secretory power of the kidney operated upon is the point in question. It may be that an operation performed upon one kidney arrests its secretion temporarily, no evidence of the fact being demonstrable because of the unarrested secretory power of the untouched healthy kidney on the opposite side.

It being quite impossible to determine the arrest of the function in a kidney operated upon in the presence of another healthy kidney which continues to secrete urine following operation, it becomes necessary in experimental work that we should deal with animals possessed of but one kidney. The preliminary experimental work to determine this point consisted in,

STEP 1. The removal of the left kidneys of rabbits, measuring the size of the right kidney in order that its compensatory enlargement might be determined later; and noting the time following operation that the rabbit voided urine.

STEP 2. Subsequently operating upon the remaining right kidney, measuring its size to determine the vicarious enlargement of the organ; resecting a small portion of the kidney substance from its greater convexity, and splitting through the kidney substance to the pelvis. *A.* Closing the wound in a certain number with mattress sutures and noting the time following the operation that the rabbit voided urine. *B.* Performing the same operation in a certain number of rabbits and establishing drainage; *a.* with a rubber tube, and *b.* with gauze, not closing the kidney wound entirely and noting the time at which kidney secretion was again established. The technique employed in each rabbit was the same, and is as follows:

Technique. Step 1. The abdomen was opened through a median incision. The left kidney was exposed, freed from its bed, the pedicle clamped and tied with catgut and the kidney removed. The right kidney was exposed and measured by means of compasses without dislodging it from its bed; the measurements being the length of the organ from pole to pole, and the width from the junction of the pelvis and kidney substance to the midpoint of the greater convexity. The stomach was drawn into the wound, and injected with 25gtt. of a 10% aqueous solution of methylene blue by means of a hyperdermic syringe. The needle puncture in the stomach was inverted by a purse-string suture of linen thread. The abdominal wound was then closed, and the rabbits placed in a cage, the floor of which was covered with white blotting-paper so as to determine the presence of the first urine voided containing the methylene blue.

Table No. 1, showing the duration of time between the left nephrectomy and the first urination.

Rabbit No. 1.....	Died				
Rabbit No. 2.....	Urinated between	10	and	18	hours
Rabbit No. 3.....	Urinated between	10	and	18	hours
Rabbit No. 4.....	Urinated between	10	and	18	hours
Rabbit No. 5.....	Urinated between	10	and	18	hours
Rabbit No. 6.....	Urinated between	4	and	6	hours
Rabbit No. 7.....	Urinated between	1	and	4	hours
(no blue)					

Table No. 2, showing the duration of time between the resection of the remaining right kidney, closing the wound entirely, and the first urination.

Rabbit No. 1.....	Died
Rabbit No. 2.....	Urinated between 38 and 43 hours
Rabbit No. 3.....	Urinated between 38 and 43 hours
Rabbit No. 4.....	Urinated between 38 and 43 hours
Rabbit No. 5.....	Urinated between 43 and 44 hours
Rabbit No. 6.....	Urinated between 38 and 43 hours
Rabbit No. 7.....	Died during the operation

These two tables serve in comparison to show the time at which urination is established (a) when one of the two kidneys is removed (b) when an operation of kidney resection and closure of the wound is performed on a rabbit with but one kidney.

The rabbit normally urinates about every three hours. (a) When one of the two healthy kidneys was operated upon, urination was somewhat retarded. This may be due to reflex inhibition of the untouched kidney; more probably, however, it was the result of the ether. It was impossible to note the exact moment at which urination took place. In this class, however, urination was noted to take place before 18 hours in all rabbits, some earlier as may be seen by the table. (b) When the operation of resection of the only kidney present in the rabbit was performed and the wound closed entirely, the time at which urination was established was considerably longer. In none did urination take place for 38 hours, and in one it did not take place until after 43 hours.

It becomes evident from these experiments that an operation of kidney resection upon a healthy rabbit with but a single kidney, although that kidney is healthy and has undergone its maximum vicarious enlargement, does temporarily diminish the function of the organ as evidenced by the fact that urine ceases to be formed for many hours.

Table No. 3, showing the vicarious enlargement of the kidney after removal of left kidney.

Rabbit No. 1.—Died.

Rabbit No. 2.—Meas. 2.7 cm long x 1.9 cm from hilum to greater convexity. Four days later.—Meas. 3.8 cm long x 2.6 cm from hilum to greater convexity. Increase—1.1 cm in length and 0.7 cm in width.

Rabbit No. 3.—Meas. 2.2 cm long x 1.9 cm from hilum to greater convexity. Four days later.—Meas. 3.2 cm long x 2.3 cm from hilum to greater convexity. Increase—1.0 cm in length and 0.4 cm in width.

Rabbit No. 4.—Meas. 2.2 cm long x 1.9 cm from hilum to greater convexity. Three days later.—Meas. 3.4 cm long x 2.4 cm from hilum to greater convexity.

Increase—1.2 cm in length and 0.7 cm in width.

Rabbit No. 5.—Meas. 2.3 cm long x 2.2 cm from hilum to greater convexity. Three days later.—Meas. 3.9 cm long x 2.6 cm from hilum to greater convexity. Increase—1.6 cm in length and 0.4 cm in width.

Rabbit No. 6.—Meas. 3.1 cm long x 1.8 cm from hilum to greater convexity. Three days later.—Meas. 4.0 cm long x 3.0 cm from hilum to greater convexity. Increase—0.9 cm in length and 1.2 in width.

Rabbit No. 7.—Meas. 2.4 cm long x 1.7 cm from hilum to greater convexity. Three days later.—Meas. 3.8 cm long x 2.9 cm from hilum to greater convexity. Increase—1.4 cm in length and 1.2 in width.

Four of these rabbits had a period of three days and two a period of four days during which the kidney might increase in size to compensate for the left kidney which was removed. It appears that the kidneys left four days did not increase more than those left only three days. It may be inferred from this datum that the vicarious enlargement of the rabbit's kidney reaches its full development before three days. Food and water was present in each cage.

STEP 2. Performed several days later. The abdomen was opened through the same median incision, the kidney exposed and measured as before. The kidney was freed from its bed. A wedge from the greater convexity measuring from 2 to 3 cm. long by about 1 cm. wide and from 1 to $1\frac{1}{2}$ cm. deep was removed. A blunt instrument was passed into the pelvis in each instance. The wound in the kidney was closed, two mattress sutures of No. 00 catgut being placed through the substance of the kidney. The stomach was injected with methylene blue in the same manner as noted in Step. 1. The rabbits were placed in a cage, the floor of which was covered with white blotting paper and the time of the first urination following operation noted.

It having been determined from these experiments that an animal possessed of a single kidney which kidney has a temporary arrest of its secretory function following an operation of resection of a portion of the organ and closing this wound entirely by sutures, information was desired whether or not the same arrest of the urinary secretion takes place when the kidney wound is not closed entirely but is drained.

To determine this point another series of animals was subjected to a left sided nephrectomy, the right side being left undisturbed, and subsequently undertaking the same operation of

kidney resection as previously noted; but instead of closing the wound entirely, rubber tubing or gauze was carried into the renal pelvis and brought out through the loin, the kidney wound being but partially closed by a catgut suture on either side of the drainage. A clean pad was placed over the drainage and fastened in position so as to detect the first appearance of methylene blue in the pad. The animals were placed on white blotting paper to detect the urine if voided. The time at which the elimination of this fluid, which determined the times at which the kidney began secreting when (a.) rubber tube was used, and when (b.) gauze was used, are seen in the following tables.

Table No. 4 (a). Showing the duration of time between the operation and the first secretion of urine when the kidney was drained by a rubber tube.

Rabbit No. 1.—The pad on the drainage tube became moistened with a blue fluid between 6-7 hours following operation.

Rabbit No. 2.—The pad on the drainage tube became moistened with a blue fluid between 6½-7 hours following operation.

Rabbit No. 3.—The pad on the drainage tube became moistened with a blue fluid between 7-8 hours following operation.

Rabbit No. 4.—The pad on the drainage tube became moistened with a blue fluid between 7-8 hours following operation.

Rabbit No. 5.—The pad on the drainage tube became moistened with a blue fluid between 6½-7 hours following operation.

It was noted that the pads became stained with a blue fluid before eight hours in each instance; before seven hours in the majority. No rabbit voided urine.

These animals were well 48 hours after the operation. They were killed by the injections of strychnine. The autopsies showed that the kidney incisions approximated by the suture at either side of the tube were firmly adherent. The kidney substance appeared normal with no evidence of blue stains. There was slight hemorrhage in the kidney tissue for a depth of 1-3 cm. around the tube. There was no blood clot in the kidney pelvis, ureter or bladder. Rabbits No. 1 and 4 had a small amount of normal colored urine in the bladder. In each of these animals the tube had become dislodged from the pelvis of the kidney, and the ends were covered with kidney tissue. There was no urine in the bladders of other animals.

Table No. 5 (b) showing the duration of time between the operation and the first urine secreted when the kidney was drained by gauze.

Rabbit No. 1.—The pad over the drainage became moistened with a blue fluid between 6-7 hours following operation.

Rabbit No. 2.—The pad over the drainage became moistened with a blue fluid between 6-7 hours following operation.

Rabbit No. 4.—Gave birth to 6 rabbits two hours after operation. Died five hours after operation without secreting urine.

It was noted that the pads became wet with a blue fluid in each instance before seven hours. In one before five hours.

These animals were well 48 hours after operation and were killed at that time by the injection of strychnine. The autopsies showed the kidney tissue approximated by the sutures to be firmly adherent. The kidney tissue appeared normal with no evidence of blue stains. The gauze wick was firmly held in the kidney wound by the kidney tissue. The gauze extended into the kidney pelvis in each instance. There was a blue fluid in each bladder, and although the animals did not void urine up to the time at which they were killed (48 hours) they unquestionably would have done so if allowed to live longer.

Remarks. These last two tables show that the kidney secreted a blue fluid in each instance before eight hours, in most before seven hours, and that the time of the appearance of the blue fluid was nearly the same with gauze as with rubber tube drainage.

It is to be noted that the kidneys drained with a rubber tube and by gauze secreted urine in about one-fifth of the time that was required for the urine to be voided when the kidney wound was closed entirely. Some time must be allowed in the latter instance for the collection of a certain amount of urine in the bladder before it escaped by the act of urination, yet even allowing several hours' time for this, it is unquestionable that the blue was secreted much earlier in the kidneys drained than in those which were closed tight.

As to the difference between the kidneys drained with the rubber tube and those drained with gauze, it is to be noted that the time of excretion of the blue was practically the same; the only difference between the results obtained with the two forms of drainage material being that all the animals drained with gauze had a blue colored urine in the bladder, while those drained with the tube had none, except in two instances in which the tubes had become dislodged from the kidney pelvis and the

ends occluded by the kidney tissue. It may therefore be inferred that there is a freer escape of fluid from the kidney pelvis when drained with a tube than when drained with gauze.

To summarize. The points of this paper are:

First. That the rabbit normally urinates about every three hours.

Second. After performing a left-sided nephrectomy, urine was not voided for from ten to eighteen hours except in one instance, when a blue urine was voided between four and six hours. (At least three hours and probably more time must be allowed for the accumulation of urine in the bladder before it was voided).

Third. After resecting a portion of the remaining kidney opening into the renal pelvis and closing the wound entirely, urination did not take place for from between 38 and 43 hours, and in one instance between 43 and 44 hours. (Here, too, several hours must be allowed for the accumulation of urine in the bladder before it was voided).

Fourth. After resecting a portion of the kidney and draining it with a rubber tube through the loin, urine was secreted in every animal before eight hours, and in most between six and seven hours. Except when the tube became dislodged from the renal pelvis, all the urine drained through the loin, none going down the ureter to the bladder.

Fifth. After resecting a portion of the kidney and draining it with gauze through the loin, urine was secreted in all the animals between six and seven hours, except in one which showed a blue fluid between four and five hours. In each instance the urine drained both through the loin and down the ureter into the bladder.

Assuming these observations to be correct it becomes evident that following the operation of kidney resection and closing the kidney wound entirely, there results a temporary arrest of the kidney function. That performing the same operation and draining the kidney pelvis, not closing the kidney wound entirely does not cause a suppression of the kidney function in the same degree at least. That when the kidney pelvis is drained by a rubber tube, the drainage through the loin is freer than when the gauze is employed.

The writer is not prepared at present to offer any explanation for the facts here stated. These facts are simple observations, made as carefully as possible. They will be repeated. It is generally believed that the variation of the secretion of the kidney depends upon the blood tension within the organ, and by increasing the blood tension, the kidney secretes more, and by its diminution the organ secretes less.

In performing the operation of splitting the kidney, its blood tension must be disturbed, yet by closing the kidney wound it would seem that the tension should be greater than when drained. Accepting the idea that kidney secretion depends upon its blood tension as correct, the kidney should secrete more actively when closed by suture than when drained, which is not in accord with these experiments. It may be that the nerve influence governing the arterial tension within the organ exerts a greater influence upon the secretory process than does the mechanical influence of the tension of the kidney tissues, and that by entirely closing the kidney wound, the nerve influence is disturbed in a greater degree than when the wound is but partially closed.

The succeeding steps of this experimental work will be directed toward establishing the facts here stated as correct, and then making observations upon the kidney secretion with changes in blood pressure, and if possible the elimination of the nerve influence.

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THE USE OF COLLARGOL IN GENITO-URINARY SURGERY

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IT is my intention to give, as briefly as possible, an account of what may be reasonably expected of colloidal metals in genito-urinary practice. I shall refrain from discussing the use of collargol in suppurative and non-suppurative inflammations of the prostate, the epididymis or the testes, confining myself to its employment in diseases of the urethra, the bladder and the kidneys.

I. LOCAL USES OF COLLARGOL

In diseases of the Urethra—Tansard, who was among the first observers, published in 1905 the results which he had obtained with collargol in the treatment of urethritis, stating that "Collargol injections presented the same indications as silver nitrate," that "Collargol deserved to rank with other silver compounds, used in the treatment of acute and chronic gonorrhea, and that it acts as rapidly as the others." I must state here, however, that these conclusions have not been generally endorsed.

By referring to the various papers on the subject, read and discussed before the French Urological Association in 1907 and 1908, it will be noted that all the speakers seemed slightly disappointed in the results obtained with collargol in the treatment of urethritis. Desnos, for instance, obtained such irregular results in acute cases, that he abandoned its use, in acute urethritis, while in chronic cases, he places collargol about on the level with protargol. Duhot, who experimented with electragol in the treatment of gonorrhea, did not obtain "appreciable results with it." Hamonic, who treated 29 cases of posterior urethritis with electragol, describes his results as "rather vague and not sufficiently convincing." Similar conclusions were drawn by Minet, and Jeanbrau is of the opinion, that urethral irrigations with collargol, as practiced by him, did not produce any noticeable results.

The verdict seems, therefore, to be unanimous. I will mention, however, that Minet reports good success in the treatment of strictures by instillations with colloidal silver into the posterior urethra, following dilatations, by which means urethro-cystitis can be prevented. I have followed this suggestion and have been pleased with the results. Whenever there is reason to fear that dilatations have inflamed the mucosa, an instillation of collargol, behind the stricture, will assist in preventing accidents. I shall explain later, why it is possible to obtain results in this class of cases, when irrigations are not successful.

In Diseases of the Bladder—It was chiefly Jeanbrau's communication to the French Urological Association in 1907,

which started the proper study of the use of colloidal silver in the treatment of cystitis. While it must be said that a number of other observers, including myself, had previously occasionally used it, the experiments up to that time had been altogether too limited, and in certain instances had not even been published. At the advice of Tavel of Berne, Jeanbrau undertook to employ collargol in this field, and was much impressed with its advantages in urinary practice.

In 1907 he thus treated twenty cases of cystitis of varying etiology. He found that the painful phenomena were materially improved after the first two injections, while the urine began to become clearer. After three or four injections, administered at intervals of 24 hours, the pains and the frequent desire to urinate ceased. In the case of recent infections the urine became clear.

In 1908 Hamonic, Minet, Jeanbrau and myself again discussed this subject before the French Urological Association. Even Minet then admitted that "colloidal silver seemed to him the preparation of choice in the treatment of acute gonorrheal cystitis, yielding constant and very rapid results, except in old and very grave cases, where silver nitrate remains preferable." Jeanbrau, too, declared that "collargol gave him fully as good results in cystitis as silver nitrate."

My own results were not quite so constant. In the beginning I did not know just what to think, for I obtained excellent results in certain cases, while in others the remedy seemed wholly without effect, whether I used it in the form of irrigation, or whether instillation of higher concentration were practised. The reason for this discrepancy I have found in the fact that collargol is efficient if used in patients, male or female, who are suffering from retention and is not efficient when there is a tendency readily to void the bladder. I shall refer to this fact again later on.

Summarizing, the consensus of opinions it may be said, that the action of collargol in the various forms of cystitis (exclusive of the tuberculous form) is manifest, though not elective, and that the effects are more beneficial, the stronger the solutions and the longer they are allowed to remain in the

bladder, both of which conditions can be fulfilled, since collargol is not caustic, nor by any means as painful as silver nitrate.

In Diseases of the Kidneys—Collargol having shown its beneficial effect in diseases of the bladder, it seemed only natural to employ it in the treatment of infections of the ureter and the renal pelvis. This has been done in a number of cases. At first collargol, being a metallic solution, was used to fill the pelvis and the ureter to facilitate radiography. I shall not go into details on this point, except to mention that the tolerance of the renal pelvis for collargol was thus clearly established. Furthermore, a distinct improvement in the condition of the urine of a previously infected kidney was noted after this form of collargol injections and this fact is the one of interest to us here.

The direct treatment of renal infections by means of lavages of the pelvis and the ureter dates back as far as 1898, when I gave Albarran the data of six cases, to be used in a communication to the French Urological Association. Since that time numerous publications on the subject have appeared. Personally I have also continued to use collargol frequently and with success. As an illustration I briefly refer to my last three cases:

Man, aged forty, had been operated for calculus of the left kidney, infected in May, 1908; in November the urine from the left kidney became cloudy. Five or six lavages of the renal pelvis with collargol solution produced clear urine. The improvement was permanent.

Woman, aged forty-five, operated upon eighteen months ago for pyonephrosis and retaining a fistula of the right kidney; was treated by a series of lavages of the renal pelvis with collargol solutions of from 1 to 3%, whereupon the urine became almost entirely clear and the fistula closed, rendering a further operation, or the interruption of her daily work, unnecessary.

Woman, aged forty, from the country, came to consult me regarding a liquid tumor of the left hypochondrium. By means of the ureteral catheter I removed 200 grains of renal retention-liquid, slightly infected with pus, and injected 15 grams of a 2% solution of collargol into the renal pelvis, since which time the urine has remained clear.

I conclude from my general experience, that direct injections of collargol into the renal pelvis can bring about improvement and frequently cause the complete disappearance of the infection.

The above are, then, the results obtained with the local use of collargol in infections of the urethra, the bladder and the kidneys. Is it possible, after what I have said, to explain the discrepancies in the opinions of the different observers?

Regarding the use of collargol in the urethra, the consensus of opinion seems to be that it does not exhibit a particularly beneficial action either in acute or chronic urethritis. Personally I do not admit that it may replace nitrate of silver, which, though more painful, must also be conceded to be more active.

In the treatment of diseases of the bladder, leaving aside cases of tuberculous cystitis without secondary infection, collargol must be admitted to possess a distinct therapeutic action, to be painless and capable of effecting a considerable improvement and often a complete cure. In order to obtain the best results, the instillations should be given preference to the lavages, because the concentration of the solution is undoubtedly of great importance. A second condition must, however, be fulfilled in order to obtain these results: Hamonic, who has treated epididymitis, orchitis and prostatitis by interstitial injections of collargol came to the conclusion that it is necessary for the colloidal silver solutions to remain in "intimate and prolonged contact with the elements which it is expected to destroy," a statement which I endorse. In this connection I desire to refer to the treatment of mammary abscesses by Chirie and Theuveny, who leave the colloidal silver solution in the abscess pocket. In other words, it is necessary in the treatment of bladder infections to leave the collargol solution in *prolonged contact* with the infected mucosa. This is the reason, why Jeanbrau declared injections into the bladder to be very much superior to lavages.

This seems to me to explain why collargol acts sometimes, and does not at other times, and to indicate what must be done in order always to assure the best possible results. I have stated

at the last French Congress of Urology my belief that: "in cases of vesical or renal retention, where the injected solution can remain for a sufficiently long time in contact with the infected mucosa, positive results are obtained; where, however, bladder and kidneys are easily and completely voided, not much is achieved with collargol therapy."

In my opinion therefore, and this is the practical conclusion from all which precedes, collargol is capable of curing (sometimes very promptly) acute cystitis (where, as is now well known, retention may exist) and chronic cystitis with retention (in prostatitis, for instance, or in women suffering from vesical prolapse). It should be used as follows:

First empty the bladder, wash it, if it is not too sensitive, and inject a 2 to 4% solution of collargol. (5% solutions do not seem to give better results). In children a 1% solution suffices. The quantity to be injected may be from 5 to 10 and, if necessary as high as 20 c.c., and the treatment can be repeated every day, or every second day.

In the treatment of renal infections, the best results with collargol are also obtained in cases where the renal pelvis does not empty itself completely. After having washed out the pelvis by means of the ureteral catheter, inject solutions of 1, 2, or 4%, leaving them in the pelvis for some time. In withdrawing the ureteral catheter, portions of the collargol solution should be deposited all along the genito-urinary tract. The quantity to be injected will vary necessarily according to the size of the renal pelvis, which must previously be determined by means of the usual technique.

II. THE USE OF COLLARGOL IN GENERAL URINARY INFECTIONS

When the first publications on the use of collargol in infectious conditions appeared, I tried this remedy, as everybody else did at that time, at the Clinic of Necker Hospital. I began, like the other observers, with the use of the inunctions, curing many patients and seeing others die in spite of the treatment, without obtaining any effect whatever from the drug. Therefore, again like many others, I abandoned the systemic use of

collargol. Since then I have changed the technique and have also used injections of electrargol and electrauro, but I cannot report brilliant results in this field. Many patients were cured, but many others died in the course of the treatment. At any rate, I did not gain the impression that collargol constitutes and absolutely efficient remedy in the grave cases of general urinary infections, in which, above all, we should like to rely upon it.

In spite of this I do not say that collargol should not be used. On the contrary, I for my part, shall continue, to use injections of colloidal metals at all times, for what they are worth, without reposing exclusive reliance upon this treatment.

I am in this respect entirely in accordance with Paul Delbet, who states that "there is no reason why the use of collargol should prevent us from applying early and active surgical treatment." Here is a striking illustration: One of our colleagues, aged 38, had been suffering from general sepsis and had been treated with repeated injections of electrargol. The urine was cloudy and a urethral stricture, which scarcely admitted a fine bougie, was present. I performed a urethrotomy, as the only means of saving the patient's life. The next day his general condition had improved, the chills occurred less frequently, and the urine became clearer. In a few hours the operation had produced more effect than all the previous injections. It did not, however, suffice to prevent, recurrence. The patient died 53 days after the urethrotomy.

My conclusion is therefore, that, if in the course of a grave general urinary infection there exists a possibility of preventing its spread by surgical means, the latter must be taken advantage of at once, utilizing at the same time the undeniably beneficial properties of the colloidal metals. It is, however, dangerous to temporize, and to expect of the injections alone, that which they cannot do with absolute certainty.

THE OPERATION OF EPIDIDYMO-VASOSTOMY FOR THE RELIEF OF STERILITY *

By EDWARD MARTIN, M. D., Philadelphia,

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THE operation of epididymo-vasostomy for the relief of sterility due to obstruction of the spermatozoa lodged in the tail of the epididymis was first tried on dogs. In them the vas was cut completely across, the free end of the segment communicating with the urethra was split, a small fragment was snipped from the head of the epididymis, and into the opening thus made the vas was stitched. These dogs all exhibited spermatozoa in their ejaculations, and a patulous condition of the tube continued for upwards of six months. Further observation seemed unnecessary.

Encouraged by the experimental success, the operation was practiced upon a human being for the first time upon his earnest solicitation, and also with the full understanding of its experimental character, on December 24, 1901, the subject being a man whose childless marriage was absolutely dependent upon azoöspERMIA consequent upon obliterating epididymitis and chronic posterior urethritis. His wife had been subjected to dilatation and curettement before it was discovered that her husband was sterile. Semen twelve hours old sent for examination a little more than two weeks after operation showed spermatozooids, not so plentiful as usual, but actively motile. The differential count showed that 50 per cent. of the cells present had either a much enlarged middle piece or one showing a protuberance somewhere along it. In nearly all of them the middle piece was more marked than those usually observed. These cells corresponded in type to those observed in the epididymis of the human testis removed after death and subjected to an examination.

These microscopical findings, whilst proving that the anastomosis had been successfully accomplished, by no means decided the question as to whether or not the man had become

* *Therapeutic Gazette*, December, 1909.

fertile, since a morphological study of the human spermatozooids taken from the rete testis, the upper part of the epididymis, and the vas shows a developmental change in the progress of the spermatozoa through the epididymis sufficiently marked to be readily detected, and suggesting that this change may be essential to the full development of the life-giving properties. This patient resumed marital relations on January 9, and on October 17, 281 days later, his wife was delivered of a normal girl baby, who then had and has since exhibited a striking resemblance to her father. It was thus completely established that an anastomosis could be made between the vas and the epididymis, and that spermatozoa coming from the upper part of the epididymis were fertile. Subsequent experience has further demonstrated that an anastomotic opening thus made probably remains patulous.

Success in this first case was purely a matter of luck. It was assumed that the obstruction in this case, and in most cases, was to be found in the tail of the epididymis. This assumption was subsequently proven to be without foundation. The patient had suffered for years from a chronic posterior urethritis, vasitis, and semi-vesiculitis, conditions which in themselves may produce azoöspemia in the absence of any lesion of the epididymis. Moreover, subsequent examination of the spermatozoa of the semen of this patient showed that spermatozoa would appear and disappear in proportion to the faithfulness of treatment directed to recurring attacks of posterior inflammation or the neglect of such treatment. In the subsequent experience it was only by repeated failures after operations, which in so far as the anastomosis was concerned promised entire success, that the likelihood of an obstruction elsewhere in the vas was seriously considered. Thereafter we proved the patulousness of the vas from the level to the middle of the epididymis, and the urethra was tested by a preliminary injection of indulin or other coloring matter. In one case, a bilateral operation, Dr. Carnett injected indulin into one side and carmine into the other, recovering both.

Of the cases presenting themselves for operation because of sterility, congenital absence of the vas was noted twice. In

both cases the epididymis was filled with motile and apparently normal spermatozoa. In a number of cases the indulin injection failed to appear in the urine after ampullar and prostatic massage, nor could it be found in the seminal emissions. In some cases complete occluding stricture of the vas was seen at the time of operation, making injection impossible. In six cases there has been a reappearance of spermatozoa after the operation, and the wives of three of these, who were before sterile, became pregnant. In two of these three cases children have been born that are perfectly normal. The third case aborted in the sixth month.

The technique of the operation is extremely simple, requiring for its performance knives, forceps, scissors, and needles customarily used by the eye men. I have usually made a lateral anastomosis, but in some cases have cut the vas off, split its end, and sewn this split end into the epididymis, finding this an easier procedure. Before making the anastomosis the milky fluid exuding from the epididymis is examined for spermatozoa, and if these are not found section is made near the testicle. In one instance followed by a complete success this section was made in the region of the rete testis. As a rule no ligatures are required, care in the handling of the veins insures the absence of thrombosis, and the application of an elastic jock strap enables the patient to go about his occupation immediately on recovering from ether. Because of this fact, and because patients have not always given the name by which they are generally known, it has been difficult to follow a number of the cases. The case histories of those who have been reached are as follows:

CASE 1—J. R., thirty-three years old, because of double epididymitis, subsequently a childless marriage, and azoö-spermia, presented himself for operation. Both epididymes exhibited marked chronic induration. At the time of his acute attack symptoms of posterior urethritis were unusually well marked, and the prostate, seminal vesicles, and base of the bladder showed marked traces of an old severe inflammation. Eight years later the prostate was small, flat, and neither the seminal vesicles nor the ampulla of the vas could be felt.

Operation on one side unchecked by injection at the vas with indulin gave negative results.

CASE 2—Referred by Dr. Atlee, of Lancaster, Pa. Was operated on in May, 1902, for the cure of sterility incident to a bilateral epididymitis, his azoöspemia having been proved by repeated examinations. Four years later his semen was found to be swarming with living spermatozoa, and this condition has since been maintained.

CASE 3—Mr. M., exhibiting nodular enlargement of the epididymis incident to bilateral epididymitis, after having submitted to a prolonged and successful treatment for the cure of stricture and posterior urethritis, was operated on November 2, 1904, because of a childless marriage, which perhaps a dozen examinations had shown to be due to azoöspemia.

Excision of a small section from the head of the epididymis was followed by the appearance of the customary milky fluid, which was found to be swarming with spermatozoa. The vas was split and sutured to this opening. The opening promptly disappeared. It was not possible to obtain further information from him until April of this year, when he one day appeared in my office, announcing that repeated examinations had shown that his emissions contained spermatozoa, and as a further proof he had become the father of a vigorous child.

CASE 4—Mr. R., because of a childless marriage incident to repeated bilateral epididymitis, resulting in azoöspemia, was operated upon May 8, 1906. Both epididymes were found to be distinctly enlarged on palpation. On removal of a wedge-shaped portion of the epididymis the characteristic milky fluid appeared and was found to be swarming with spermatozoa. The vas was unusually patulous. Anastomosis was made on one side. No test was employed to determine the patulousness of this tube. The result some three months later was negative, nor have spermatozoa since appeared.

CASE 5—Mr. M., aged thirty-two, operated on by Dr. Carnett September 14, 1906, at the Stetson Hospital, exhibited unilateral atrophy incident to mumps. There was a history of epididymitis, the patient being uncertain as to whether it was

single or double; it was certainly recurrent. He presented himself for operation because of a childless marriage and because repeated examination of his semen showed absence of spermatozoa. Exhibited deep, tight urethral stricture, induration and enlargement of the prostate, with shreds in both urines. On operation the epididymis showed fatty degeneration and absence of spermatozoa in its body. A few were found in the head close to its testicular attachment. Anastomosis was made at this point, supplemented by meatotomy and internal urethrotomy. A week later an acute epididymitis developed on the operated side. An examination for spermatozoa three months later was negative, nor did the patient persist in the treatment directed for the posterior urethritis.

CASE 6—Mr. N., twenty-four years old, suffered from a double epididymitis following specific urethritis contracted in 1900. There was distinct nodulation of both poles of the epididymes. Repeated examinations made because of a sterile marriage demonstrated azoöspemia. On the 13th of December, 1906, the left vas and epididymis were exposed, the latter structure exhibiting cystic degeneration and fibroid induration. Incision into it and examination of the exuding fluid failed to show spermatozoa. Repeated incisions were made, but in all cases with negative microscopic findings. Finally, an opening was made in the testicle near the attachment of the head of the vas, but microscopic findings of the resultant exudate were negative. The wound was closed without making an anastomosis.

The patient went home the next day, but returned to the hospital three months later, when the right epididymis and vas were exposed. This epididymis also exhibited cystic degeneration, but an incision into it was followed by the appearance of the characteristic milky fluid, examination of which showed non-motile spermatozoa. A cut made into the testicle just beyond its junction with the upper portion of the epididymis exhibited an abundance of motile spermatozoa. Anastomosis of the vas was made at this point and the wound closed. The patient returned to his home the next day.

A portion of the upper part of the epididymis was excised

and submitted to microscopic examination, the report of which is as follows: "In many places the tubules are full of cells which under examination by an oil immersion lens are shown to be spermatozoa. In some areas the tubules appear to be slightly atrophic, the epithelium having disappeared. In others the tubules are compressed by a hypertrophy of the surrounding connective tissue. This connective tissue stroma is dense and hyaline in appearance and contains comparatively few cells. It is an evidence of a previous chronic irritation. It can be assumed from the number of spermatozoa present that an obstruction in the vas has probably existed."

A report from this patient some weeks later was to the effect that the azoösperma still continued. Two years later a letter was received from him to the following effect: "I owe you an apology for not writing to you all this time in regard to my case. No doubt you have forgotten all about it, and, as a reminder, I wish to state that you operated upon me for sterility about a year and a half ago. The operation was a success, and my wife is pregnant now in the fifth month. I take this occasion to thank you for your kind interest in my case and to congratulate you upon the success of the operation."

In a further communication the patient stated that his wife aborted a living child in the sixth month of pregnancy; that he has had his semen repeatedly examined and that living spermatozoa are always found. In corroboration of this he forwarded me his laboratory reports.

CASE 7—L. B., forty years old, referred by Dr. Valentine Levi for azoöspermia, was operated on January 11, 1907. He gave a history of having suffered from Neisserian infection seven years before, which was followed by enlargement, pain, and tenderness in the right epididymis. These inflammatory attacks have recurred. As a result of a childless marriage repeated examinations of his emissions were made, and they all demonstrated the absence of spermatozoa. A most searching examination failed to show the presence of a vas. Section of the epididymis was followed by the customary milky discharge, the immediate examination of which showed it to be swarming with actively motile spermatozoa. A later

operation on the other side exhibited the same congenital absence and a similar turgid condition of the epididymis.

CASE 8—W. H., referred by Dr. Robert N. Wilson, contracted gonorrhea in 1904, complicated by bilateral epididymitis which recurred. Repeated examinations for spermatozoa proved their absence. Shreds were present in both the first and the second urine. On account of the evidences of chronic follicular prostatitis, the prostate was subjected to prolonged treatment both by irrigations and massage. Azoöspermia still continuing, the vas on each side was explored. That on the left allowed the passage of a fine silkworm-gut suture not more than one inch; that on the right was completely occluded. A half-inch was taken out for pathological examination, and the report upon the specimen made by Dr. Speese is as follows: "Transverse sections showed a complete atrophy of the mucosa, and its place occupied by a mass of granular tissue, consisting chiefly of connective tissue cells. There is no evidence of a tubercular or other specific inflammation in the slides examined."

CASE 9—W. A., thirty-three years old, because of a sterile marriage incident to bilateral epididymitis, presented himself for treatment the 28th of December, 1907. Distinct nodulation of the epididymis could not be felt. Repeated examination demonstrated the absence of spermatozoa. Anastomosis was made on both sides, each epididymis being found to contain spermatozoa, motile on the left side, non-motile on the right. The left vas is apparently completely occluded about $1\frac{1}{2}$ inches from its origin from the epididymis. Indulin was injected before making the anastomosis. An emission occurring the night after operation was deeply stained with this fluid. Two days later an examination of the emission was negative.

A recent communication records the fact that actively motile spermatozoa have appeared in the emissions; there has, however, been no impregnation of his wife.

As indicating the care which should be exercised in deciding whether or not azoöspermia is irremediable by other than operative measures, the following case is not without interest:

CASE 10—Mr. W., aged twenty-eight, without history of previous epididymitis, was referred for treatment by Dr. John G. Clark because of a childless marriage, Mrs. W. having been found to be perfectly normal and Dr. Clark having found on two examinations of the semen of Mr. W. that spermatozoa were absent. Neither the testes nor vasa presented an abnormality. On examination the urine, however, contained shreds, the prostate was uniformly enlarged and hard, and the vesical base above exhibited an infiltration. A No. 26 sound passed with some difficulty through the membranous urethra. A course of prostatic massage followed by double irrigations and gradual dilatation by steel sounds was instituted. This was continued for a period of three months, the prostate becoming distinctly softer, pus and shreds disappearing from the urine, but the seminal vesicles still remaining distinctly indurated and enlarged. After injection of his vasa with indulin he had a discolored emission, but this was by no means easy. There has been in this case no appearance of spermatozoa, the patient still being under prostatic massage. The operation, which had for its end merely the determination of the patulousness of the ejaculatory ducts, was performed about six months before the present report.

CASE 11—Mr. F. presented himself in May, 1908, with a history of having suffered from gonorrhea in 1895 subsequently complicated by epididymitis, which he thinks was bilateral. Examination failed to show distinct induration. He had been married for five years, but his wife had not conceived. Examination of his semen showed it to be lacking in spermatozoa. Anastomosis was done on the left side, indulin injection having shown a patulous condition of the vas and the urethra. The epididymis was about double its normal size, but not cystic, and on section exuded a thin secretion containing motile spermatozoa. Reports on this patient shortly after operating were negative. Later, in response to a question, he sent word to the effect that living spermatozoa were present in his emissions.

CASE 12—Mr. M., because of a sterile marriage incident

to prolonged posterior urethritis, seminal vesiculitis, and vasitis, complicated by bilateral epididymitis, presented himself for operation after a preliminary course of treatment directed to the cure of his inflammatory lesions, March, 1909. In his case there was prompt reappearance of spermatozoa, and his wife bore him a healthy child, which is still living, within a year after the operation.

CASE 13—Mr. B. F., thirty-eight years old, suffered from double epididymitis while yet a young man, and applied for treatment because of a sterile marriage. Repeated examinations of the semen showed azoöpermia. He was operated on by Dr. Carnett the middle of August, 1908. Section of the epididymis showed numerous but immotile spermatozoa, the ducts apparently being clogged. Bilateral anastomosis was performed, indulin previously being injected into one vas and carmine into the other. A catheter later introduced into the bladder showed the urine stained with both colors. Moreover, microscopic examination exhibited the crystals of both indulin and carmine. Internal urethrotomy was performed for the relief of a tight stricture, and the catheter was tied in for twenty-four hours.

A report from this man's doctor dated June 15, 1909, states that the condition of azoöpermia still continues, and that after returning home he suffered from a severe urethritis.

CASE 14—R. M., thirty-five years old, exhibiting bilateral testicular atrophy incident to mumps contracted at the age of eighteen, without venereal history and without evidence of a urethral infection of any kind, presented himself for treatment because of a sterile marriage, investigation into the cause of which had shown that his emissions were lacking in spermatozoa though he was both amorous and potent.

In the operation an incision was made into the epididymis, but was not followed by the characteristic milky fluid, and spermatozoa were few in number, malformed, and non-motile. Anastomosis was performed, and the patient left the hospital the next day wearing a suspensory bandage.

A recent communication states that spermatozoa have not yet appeared in the ejaculations.

CASE 15—Mr. B., aged thirty-five, referred by Dr. Lonzo Rose, of Parkersburg, West Virginia, suffered at the age of twelve years from mumps, which resulted in atrophy of the right testicle. He was operated upon for varicocele of the right side, and thereafter, subsequent to catheterization, suffered from recurring attacks of posterior urethritis, complicated still later by a Neisserian infection which apparently involved the vas, but which did not reach the epididymis. Repeated examinations for spermatozoa demonstrated their absence. No induration could be found about the epididymis. Under local anesthesia the vas of the left side was exposed, slit, and the fluid contained within its lumen immediately examined for spermatozoa, with negative findings. About 30 minims of indulin solution was injected into the vas and the wound was closed. The seminal vesicles were massaged, but no indulin could be recovered either from the expressage or from the urine or in ejaculation, although some days after his return home the patient reported a discoloration in an emission; this as described by him was by no means characteristic. There has been in this case no appearance of spermatozoa, the patient still being under prostatic massage. The operation, which had for its end merely the determination of the patulousness of the ejaculatory ducts, was performed about six months before the present report.

Clinical experience seems to justify the following conclusions:

1. The testicle departs from the type of duct glands in general from the fact that obliteration of its duct is followed neither by atrophy nor any appreciable change in its physiological function, since an incision into such a gland, the duct of which has been obliterated for many years, may show apparently normal and healthy spermatozoa.

2. Though the spermatozoa in their course through the epididymis may undergo changes sufficiently marked to be demonstrable microscopically, this period of their evolution does not seem to be essential to their vitality or their fertility, since taken direct from the afferent ducts they exhibit character-

istic rapid and vigorous motion and if implanted upon the ovum impregnate it, as demonstrated by at least one case.

3. Epididymitis permanently obliterates the duct as the exception rather than the rule, nor is the likelihood of permanent obstruction gauged by the severity of clinical symptoms. Recurrent bilateral attacks, even though moderate in severity, seem more likely to produce a condition of azoöstermia than a single severe attack. Azoöstermia incident to gonorrhea, or other affections, may be due to obstruction in the epididymis, the vas, or the ejaculatory duct. The seat of obstruction is frequently in the ejaculatory ducts, is certainly at times in the vas, and, as shown by one case, may be multiple here.

4. An anastomosis between the vas and the epididymis or testicle can be successful only when there is no occlusion between the seat of anastomosis and the urethra. The presence or absence of obstruction in this portion of the canal can be readily determined by exposing the vas under local anesthesia and injecting a pigment, such as indulin or carmine. This operation can be done quickly, and if the proper jock strap be applied, implies no interference with the ordinary routine of life. This test should be made before attempting an anastomosis operation.

5. In my own work the anastomosis operation has been followed by a reappearance of healthy spermatozoa in six cases, and three previously sterile marriages have been rendered fertile. The spermatozoa may not appear in the emission for weeks or months after the operation.

6. In the majority of cases presenting themselves because of azoöstermia the obstruction was not in the epididymis. Its presence elsewhere is suggested by the absence of a previous history of epididymitis. Congenital absence of the vasa in two cases sufficiently accounted for it. In one case there was a probable functional deficiency upon the part of the testicle itself.

7. The operation of anastomosis can be performed under local anesthsia, but not always satisfactorily to the patient. It is usually bloodless and detains the patient only long enough

for its performance and recovery from general anesthesia when this is given. It leaves no appreciable scar, and, if the veins are carefully handled, is followed at most by a slight local soreness and trifling swelling.

CHRONIC DISEASE OF THE COLLICULUS SEMINALIS. Arnold Edwards of Manchester, (*British Medical Journal*, Dec. 11, 1909) examines the colliculus seminalis through an appropriately curved urethroscopic tube with a capacious window on the under aspect of the curve, which, when the obturator is removed, allows even an enlarged colliculus to enter. The straight urethroscope is not adapted to this work. The curved tube was made for him some years ago by Gentile, of Paris, and works well with the ordinary Valentine lamp. This arrangement is excellent for the preliminary examination, as it shows the true colors of the parts, and is, moreover, excellent for treatment. For the study of the more minute details, Edwards finds the Goldschmidt irrigation urethroscope invaluable. This is really a urethroscope on the principle of the cystoscope, a flowing stream of water serving to distend the canal, to wash away any bleeding, and to keep the lamp cool. Unfortunately the instrument produces marked anemia of the parts, but a full investigation of the colliculus can be secured by an alternate use of both instruments mentioned. Much experience is required in deciding between healthy and diseased appearance. Usually, the colliculus is about the size of a split pea, yellowish-rose in color. With the Goldschmidt instrument the orifices of the prostatic ducts are easily seen, a feature which is not detected with the other urethroscopes. When the colliculus is the seat of soft infiltration, it swells becomes dull red and cyanotic and its surface loses its smooth aspect, showing the formation of folds.

REVIEW OF CURRENT UROLOGIC LITERATURE

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

Vol. 28, I, No. 1, January 1, 1910.

1. On Ureteral Calculi. (*To be Concluded.*) By Émile Jeanbrau, Montpellier.

Vol. 28, I, No. 2, Jan. 2, 1910.

1. On the treatment of urethral stricture. By Dr. Batut, Marseilles.
2. On ureteral Calculi. By Émile Jeanbrau, Montpellier.

(*Concluded*)

1. THE TREATMENT OF URETHRAL STRICTURES. Batut contributes a review of this subject with a report of six cases. After briefly outlining the pathology of urethral strictures, the author considers in turn each of the various methods of treatment. The latter may be divided into the operative and non-operative. The non-operative treatment may be subdivided into the use of thiosiamine, dilatation and electrolysis. *Thiosiamine* has been recommended for some years past and is in favor with some surgeons, but the present author does not record any experience with it. The forcible divulsion of LeFort has survived in spite of its brutal character and the complications to which it has led. *Progressive dilatation* with sounds has for a long time been a favorite method, not only in wide calibre strictures, but also in those admitting only a number 8 or 10 instrument. This method is safe, but it is slow and requires renewed treatment once or twice a year. This method is facilitated by the use of conical silk bougies, of bougies weighted with lead, of Phillips' bougies ending in a filiform, or of sounds to which filiform guides are screwed. Great care must be taken in using these instruments, lest the joint between the filiform and the rest of the instrument give way and thus the filiform be retained in the bladder. Progressive dilatation is often difficult to begin in strictures admitting only a filiform. In such cases it may be necessary to inject a 1 per cent. solution of cocaine into the urethra, or into the periurethral tissues. In extreme cases general anesthesia may be necessary before a bougie of sufficient size can be introduced. If, in

spite of all efforts, dilatation cannot be carried along up to numbers 10 or 12, internal urethrotomy is indicated. Dilatation has its dangers, as witnessed by recent reports of fatal cases (Wyeth, Troisfontaines). Various improvements in the technique of dilatation have been made during the past two or three years, and are briefly reviewed by the author.

Electrolysis has its indications in the treatment of strictures. The circular method of Newman is to be preferred, provided a filiform bougie can be passed. The method is slow and requires a number of treatments, but if properly applied it is safe.

Operative treatment is indicated when the stricture is multiple, complicated, or impassable, even to a filiform. The simplest method is *internal urethrotomy*; next comes the external method, with or without a guide; and, finally, the external perineal method. The author rejects the suprapubic route with retrograde dilatation. Internal urethrotomy with Maisonneuve's instrument has been performed in 173 cases in the French army from 1900 to 1907, with one death among the series. Internal urethrotomy should be resorted to in tight, hard strictures, but should be complemented by dilatation or electrolysis applied annually for a period of at least five or six years. *External urethrotomy* should be employed only in those cases in which the internal method is contra-indicated and dilatation is unsuccessful. It should be reserved for complicated cases, for deep strictures, and often should be combined with the internal procedure. The external incision is particularly indicated in traumatic strictures. In cases of traumatic rupture of the urethra immediate operation is indicated, with excision of the injured part and suture of the canal. If the posterior segment of the urethra cannot be found, suprapubic incision may be made, and then retrograde catheterization practiced.

2. URETERAL CALCULI. E. Jeanbrau, in an elaborate article on this subject presented to the Thirteenth Meeting of the French Urological Association, reviews the operative technique and the results of treatment in 239 cases of ureteral calculi.

The first part of the article is devoted to the history, anatomy, pathology, and diagnosis of ureteral calculi, and constitutes, in all probability, the most complete resumé of the subject that has appeared. A great deal of attention is given by the author to the *radiographic diagnosis of ureteral calculi*. The principles and technique of this work are given in detail. Radiography of the urinary tract was in the experimental stage until 1907. It was only during the past three years with perfected technique, that precise results have been obtained. The

author agrees with Cole, of New York, that any stone which is too large to be voided spontaneously should give a radiographic shadow, with very few exceptions. Arcelin has lowered this limit of visibility, and has detected shadows of calculi weighing as little as ten centigrams. The use of ureteral catheters, armed with metallic stylets, is of great value in excluding errors with the X-ray.

As regards *indications for treatment*, a study of the entire subject convinced the author that a ureteral calculus requires removal more systematically and more urgently than a stone in the kidney. The mortality of uretero-lithotomy does not exceed two per cent. It is best to operate even when the X-ray shows that the calculus is not larger than an orange pit, provided the following conditions are present: 1. The calculus remains imbedded in the same position for several months. 2. Its long axis is not parallel to the ureter. 3. It produces attacks of intermittent hydronephrosis or pyonephrosis. 4. It produces pain indicating the development of ureteritis and peri-ureteritis. 5. Ureteral catheterization shows that no urine flows from the blocked side.

The indications for treatment vary according to the presence or absence of anuria. *If there is no anuria*, small calculi should be watched, and the patient given mineral waters and urinary antiseptics. If the stone presents at the orifice, it may be dislodged with the ureteral catheter. *In cases with anuria* the ureter last blocked should be catheterized, and if this fails the opposite ureter should be tried. Sometimes the introduction of the catheter, or the injection of cold sterile water, or of oil, will produce contraction and expel the stone. It should be remembered, however, that a ureter which has been obstructed for some time is not safe to be catheterized, as the wall may be thin and fragile. If the anuria has lasted longer than two days; if the X-ray has shown the location of the stone and demonstrated that the opposite side is free from stones; if the patient's general condition is good, the calculus should be removed after exposure of the ureter. In other cases of anuria it seems best to perform a temporary nephrotomy, incising the kidney which has been blocked last. If the kidney which has been opened is found destroyed, the opposite kidney should be incised. A minimum duration of anesthesia is imperative.

The *operative methods* for the removal of ureteral calculi are as follows: Extraction through the upper orifice, after nephrotomy or pyelotomy; extraction through the lower orifice, after cystotomy; and extraction through an incision into the ureter, or uretero-lithotomy. The technique of each of these operations is reviewed in detail.

The *results of operative treatment* in the 239 cases collected from literature were as follows: In patients without anuria and who were in sufficiently good condition to survive anesthesia, uretero-lithotomy gave a mortality of 1.66 per cent. In patients with anuria, the mortality of uretero-lithotomy was much higher. There were ten cases, with six deaths, a death rate of sixty per cent. The fear of ureteral fistula has been frequently expressed by surgeons. In 106 cases there were but three with permanent fistulae, while in five cases a temporary fistula existed. In two cases, both of them reported in 1882, the flow of urine did not become reëstablished, the surgeons failing to test the lumen of the canal below the stone. The fear of a fistula is unfounded, even when the ureteral incision is not sutured, provided the narrowings of the canal below the stone be properly dilated. Cases with renal infection do almost as well as aseptic cases. The *subsequent results* of the operations are, on the whole, excellent, provided the drainage of the kidney be good. Relapses seemed rare, and a recurrence is mentioned only in one case. Uretero-lithotomy, therefore, cures permanently in 98 per cent. of cases.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

Vol. 28, I, No. 3. February 1, 1910.

1. Chyluria. By G. Marion, Paris.
2. The Pathology of the Posterior Urethra. By Dr. Michailoff, St. Petersburg.
3. New Methods of Circular Electrolysis. By Girolamo Li Virghi, Pozzuoli.
4. Six Cases of Hypogastric Retrograde Catheterization. By Maurice Hache, Cannes.

1. CHYLURIA. Marion, in a clinical lecture delivered at the Necker Hospital, analyses a case of this rare urinary condition. The patient was a man of fifty-eight, who had lost about ten pounds in weight, but otherwise seemed in normal condition. He had noted nothing abnormal in his urine until August last, when one morning he discovered that the urine was white, like milk. From that day on the urine was always white at night and clear during the day. He had never had any hematuria. An interesting point, which was noted after he was admitted to the hospital, was that the urine became white after he had remained recumbent for a few minutes, while after he

had stood for awhile, the urine was always clear. The change was almost instantaneous. When the patient was given nothing but water to drink the white color in the urine gradually disappeared; but the moment he was given fats, the white discoloration appeared at once. His ureters were catheterized, and it was found that the white urine came only from the right side, which furnished the larger part of his urine; while on the left side the urine was clear and normal in appearance. On examination the urine showed the typical appearances of chyluria. Careful examination of the blood failed to reveal the presence of the *Filaria Sanguinis*. The man had never left France. The case was, therefore, one of those obscure European chylurias which are non-parasitic in origin. It is possible that a fistula exists somewhere in these cases, communicating between the lymphatic and the urinary channels. The causes of such a fistula are difficult to determine and further study is needed to enlighten us as to the true etiology of non-parasitic chyluria.

2. THE PATHOLOGY OF THE POSTERIOR URETHRA. Michailoff, of St. Petersburg, differs from Oberlaender and Kollman as regards the frequency of lesions in the posterior urethra, as determined with the aid of the urethroscope. Michailoff insists that the posterior urethra is more subject to pathological changes than the anterior. Oberlaender, as we know, considers lesions of the posterior urethra less frequent than those of the anterior, and remarks that the introduction of the urethroscope into the posterior portion of the canal always causes bleeding, which interferes with the examination. Oberlaender says that the examination of the posterior urethra is very disagreeable to the patient, and should be attempted only in cases in which special diagnostic information is sought. Guyon, in his treatise on the urinary organs, agrees with Oberlaender. In chronic posterior urethritis the urethroscope shows only an hypertrophy of the verumontanum, according to this author. Wossidlo, in 1908, again called attention to the importance of affections of the verumontanum, and Frank speaks of certain papillomatous excrescences in the posterior urethra.

Michailoff regards the study of the posterior urethra through the urethroscope as of exceeding importance. The bleeding which is produced is accidental, due to the hyperemia of the parts. An injection of ten grams of a one-half per cent. solution of cocaine assists in rendering the examination less disagreeable. In his opinion the so-called atonic, or paralytic, form of impotence is due exclusively to a hyperemic stagnation in the region of the verumontanum. The posterior urethra may be found the seat of ulcerations, infiltrations, and diverticula; of

cystic formation or of papillomatous growths. The latter may be situated between the verumontanum and the neck of the bladder. This condition Michailoff has observed in about twenty-five cases. These excrescences are probably hypertrophied folds of the mucous membrane. In all these patients there were more or less pronounced symptoms of sexual neurasthenia.

3. NEW METHODS OF CIRCULAR ELECTROLYSIS. Girolamo Li Virghi, of Pozzuoli, realizes that the present methods of electrolysis can give but relatively permanent results. Strictures thus treated have a tendency to recur, and a man with a stricture is "a subscriber to dilatation," according to the happy expression of M. Bazy. The author experimented with electrolysis under the control of the eye, in order to determine the effects of this process upon the mucous membranes. The first experiment was performed in a woman in whom the electrolysis was watched through a 42 F. Valentine urethroscope. In the second experiment a small amount of two per cent. solution of cocaine was injected into a male urethra, and the negative electrode was applied to the first portion of the canal, under the control of the eye. In both cases the application of a mild continuous current was followed by the appearance of a white area of tissue, which was easily detached and left a hyperemic surface. The galvanic current has the effect of a vaso-constrictor, followed by a vaso-dilator action and the formation of a soft eschar.

The *technique* recommended by Li Virghi is as follows: The canal is anesthetized by injecting a two per cent. solution of stovaine; the urethra is explored, and a metallic olive a size larger than that which has passed is connected with the negative electrode. After the electrolysis has been completed and the electrode has passed through the stricture, the same operation is repeated with two other olives, each a size larger. No pain is felt in the urethra, but some tingling sensation is felt at the positive pole. A current of five or six milliamperes is maintained for five minutes each time. After the dilatation has been completed, the entire region in front, at and behind the stricture is massaged, while the current still flows. The only after-effect is some burning on urination after the treatment. If the stricture is easily dilatable, five or six olives can be passed in increasing sizes, thus rapidly dilating the narrowing.

In order to *combine electrolysis with a method of conducting an instrument through a narrow stricture*, the author has had made by Gentile, of Paris, a series of metallic bulbs, numbers 8 to 16 French, which screw upon an insulated shaft, but which also have a screw

thread at the other end, whereby they can be connected with the fili-form bougies of a Maisonneuve urethrotome. After the fili-form has passed, the olive is employed in the same manner as already described. This combination of instruments is useful in the treatment of narrow, tortuous and indurated strictures, as well as in strictures of the posterior urethra.

Li Virghi also advocates *electrolysis of strictures combined with urethroscopy*. This is possible only when the patient has a very large urethra in front of the stricture. The endoscope is introduced, the stricture found, and the negative electrode is applied to it, under the control of the eye. Irrigations with boric acid solution may be used in the intervals between treatments.

Another method employed by Li Virghi is what he calls simple, *electrolytic massage*, or the same *combined with ionisation*. The former is indicated in all cases of urethrostenosis, except in very hard and fibrous strictures. Massage with ionisation is indicated in cases of acute urethritis without hyperacute symptoms, in cases of subacute and chronic urethritis, and in cases of stenosis complicated with urethritis. Electrolytic massage is practised after having dilated the stricture with electrolysis, by moving the last metallic olive up and down along the canal, in front, over and behind the stricture. The olive should be lubricated beforehand. The massage is followed by a warm antiseptic irrigation. If bleeding occur, some one per cent. protargol is injected. The massage with ionisation is conducted after filling the canal with protargol solution, or with one per cent. silver nitrate. Then the negative electrode is introduced, and the massage is carried out as before. This produces a more or less marked reaction, but should be repeated every three or four days. Acute urethritis can be aborted in some cases by this method. The procedure should always be followed by antiseptic irrigations.

ZEITSCHRIFT FÜR UROLOGIE

Vol. IV. No. 2. February, 1910.

1. A Clinical Study of Suprarenal Growths. By C. Adrian, Strassburg.
2. A Gauze Tampon in the Bladder, Detected with a Stone-Searcher. By K. Roerig, Hanover.
3. The Technique of Galvano-caustic Applications through the Irrigation-Urethroscope. By Dr. Kropeit, Hamburg.
4. New Cystoscopes. By Otto Ringled.

1. CLINICAL STUDY OF SUPRARENAL GROWTHS. Adrian reports a rare case of primary cancer of the suprarenal, and with this case as a text discusses in detail the difficulties and possibilities of a clinical diagnosis of suprarenal growths in their early stages. The case reported was that of a man aged forty-two, whose first symptom, a severe hematuria, had occurred three and a half years previously. Half a year later a second hematuria occurred, and the cystoscope showed that the bleeding came exclusively from the left kidney, which was not enlarged nor tender. A probable diagnosis of tumor of the left kidney was made, but operation was refused. The patient again reported, three years later, in a highly cachectic condition with a tumor in the left lumbar region which had reached considerable size. Upon the extensor surface of both forearms minute, punctuate, irregularly-scattered, flat, pigmented spots were present in large numbers. Owing to the extremely cachectic condition of the patient, operation was no longer advised. Death occurred three weeks later, and the autopsy showed a large carcinoma of the left suprarenal, which had involved the left kidney and had almost destroyed the latter.

In speaking of the diagnosis of this case, Adrian points out that there had been nothing to indicate a tumor of the suprarenal. The hematuria had pointed to a tumor of the kidney. Subjective symptoms of varying intensity had developed in the case reported and had continued for years without offering anything typical. Israel speaks of paroxysms of pain and disturbances of sensation in the region of the lumbar plexus as characteristic of suprarenal tumor; these he attributes to an involvement of the nerve roots early in the course of the disease of the suprarenal, while in new growths of the kidney the nerves are involved much later. While the patient complained of intense, sometimes cramp-like, pains and a sensation of crawling ants, and pains in the lumbar and sacral regions, as well as colicky pains in the abdomen, these symptoms were not characteristic.

A peculiar feature of the case to which the author devotes a great deal of attention was the occurrence of the punctuate pigmented spots upon the skin. This sign occurred only in two other cases of suprarenal tumors reported in literature (Trebitsch, 1897, and Clairmont, 1906).

Both of these cases offer great similarity with the present case as regards this pigmentation. In Trebitsch's case the pigmented spots developed four months before death, in Clairmont's case they developed early in the disease, while in the present case the spots appeared during the last year of life. An interesting point was that in Clairmont's case the pigmented spots disappeared after the removal of the tumor.

Adrian regards the pigmented spots as closely connected with suprarenal growths or lesions in the suprarenal. Trebitsch's case was one of primary tuberculosis of both suprarenals; Clairmont's case, one of extensive hypernephroma, beginning in the left suprarenal; while the present case was one of cancer of the suprarenal.

Pigmented spots resembling those noted in these cases have also been observed in four instances of hypernephroma, each of which is briefly summarized by the author. In three of these cases there was in addition a diffuse, brownish discoloration of the skin. This pigmentation of the skin has not been noted in any other tumors of the kidney and is, therefore, characteristic for hypernephroma and perhaps for other growths derived from the suprarenals.

2. A GAUZE TAMPON IN THE BLADDER AFTER A HERNIA OPERATION. Roerig reports the case of a man aged thirty-two who applied for treatment for a very rebellious cystitis. On examination with the sound a foreign body was detected, which seemed soft, like a mass of phosphates. The mass could not be seized with a lithotrite. The foreign body was of the size of a hen's egg. Three years previously the patient had been operated on for hernia and stated that soon after the operation he had felt a tumor on the inner side of the scar, which had remained for over two years. Then this mass had disappeared, and since then the bladder disturbances had set in. This history made Roerig think of a gauze pad left in the wound, which might have broken through into the bladder. Upon suprapubic incision a tight wad of gauze was discovered in the bladder, and easily removed. It was astonishing to find that an irregular and porous foreign body of this sort had broken through the bladder without any leakage of urine into the peritoneum; and furthermore, that upon careful palpation it was impossible to find the spot where the rupture into the bladder had taken place.

3. THE TECHNIQUE OF GALVANOCAUSTIC WORK THROUGH THE IRRIGATION URETHROSCOPE. Kropeit reports his experience with the galvanocautery as employed through the Goldschmidt operation urethroscope. The cases in which he employed galvanocautic applications included instances of prostatic hypertrophy, as well as papillomatous growths in the urethra and at the sphincter. In prostatic hypertrophy he employed the cautery knife under the guidance of the eye, or at times the broader galvanocautic point, which made a wider furrow in the prostatic projection. For the removal of papillomatous

growths Kroeit employed his galvanocaustic curette. At first he made these applications under a stream of boric acid solution, but he found that he had to use a great deal of current in order to secure a caustic action. After some experimenting, he modified the procedure and now uses alternately irrigation with fluid and inflation with air. After having examined the field of operation under a stream of boric acid solution, and having satisfied himself as to the exact procedure required, Kroeit removes the fluid from the bladder by pushing the instrument forward and drawing out the telescope. The irrigating solution is then again turned on, until the instrument once more occupies its position over the operative field. Then the irrigating stream is shut off, leaving a very small amount of fluid in the bladder. Instead of the irrigating attachment, the instrument is connected next with an air bag, the air being first filtered through a glass sphere containing sterile cotton. The amount of air which escapes is regulated by a clamp at the rubber tube of the outflow. This clamp can be set at any pressure by means of a screw. Experience soon shows how much escape of air can be allowed in order to maintain a moderate amount of distension. The posterior urethra is gradually distended with air, which then passes into the bladder which acts as a reservoir for the excess of air. Several minutes elapse before the patient feels the distension of the bladder, and the caustic application may be made during this time. In operations upon the prostate and the sphincter it is best to raise the patient's pelvis so that the urine, which collects in the bladder, may be kept away from the internal orifice. When the caustic application has been made, or in case the visual field is clouded by blood, it is very easy to substitute the irrigating attachment and to empty the bladder of fluid and air. During the air-distension the lamp of the examining urethroscope, which is attached to the roof of the instrument, soon grows very hot, but this is not the case with the operating urethroscope in which he lamp is situated laterally.

4. NEW CYSTOSCOPES. Ringled reviews the advantages and disadvantages of the old Nitze cystoscopes, and points out that a large visual field and a long working distance were obtained in these instruments at the sacrifice of the best illumination and the clearest minute details. By proper optical compensation it is possible to construct cystoscopes with smaller visual fields and shorter working distance, but with very much better definition of details and brighter illumination. The disadvantages of such an instrument, manifestly, is the diffi-

culty of using it in a general survey of the bladder. The ideal instrument is one which can be adjusted by changing the optical apparatus at will, first giving a general survey of the bladder under a moderately bright illumination, but with an ample field, without extremely minute definition of details; and then by readjusting the optical arrangement, securing a much brighter illumination with a smaller field, but a more perfect definition and an accurate focus. Ringled experimented with this object in view in the optical laboratory of Zeiss, in Jena, and offers a new instrument (made by George W. Wolf, Carlstrasse 18, Berlin), in which he has inserted in the ocular end a disc carrying a set of five lenses, which can be rotated into focus alternately by simply turning the disc. The object of this system of lenses is to correct the defects in the eye of the observer, as well as to change from a large to a small field and from moderate to minute definition. One of the openings in the disc is blank, and is employed in the general survey of the bladder at the canonical working distance. As every one knows, the normal eye after the age of forty-five becomes presbyopic, that is, no longer able to accommodate as well as in youth. In presbyopia, working at a short distance becomes impossible, and convex lenses must be used to enable the worker to accommodate comfortably for near vision. For this purpose the disc introduced by Ringled contains two lenses, one for moderate and one for more intense compensation of presbyopia. Thus the presbyopic examiner may first use the blank lens and examine the bladder in a general way. Having found an interesting point, he turns the disc to the proper lens, and examines the interesting part in detail with very bright light and accurate definition. The other two lenses are a weak and moderately weak concave lens, which may be used for correcting myopia. For the new cystoscope, Ringled claims numerous advantages for accurate observation; precise color values, correct perspective, and clearness of the most minute details being among the advantages cited.

ANNALES DES MALADIES VÉNÉRIENNES

Vol. II., No. 2, February, 1910.

1. Gummatous Infiltration of Tendons. By Pietro Stancanelli, Naples.
2. Antisymphilitic Treatment of Aortic Aneurisms. By M. M. Gaucher and Pierre Merle, Paris.

1. GUMMAS OF THE TENDONS. Stancanelli points out that the tendons are very rarely the seat of gummatous infiltrations. These le-

sions were described in tendons for the first time by Lisfranc under the name of "white nodosities," and were later studied more completely by Bouisson, who found them in flexor tendons of the fingers and in the tendo Achilles; by Nunn, who noted gummas upon the anterior tendons of the leg, etc. Within recent years but two cases of this sort have been recorded so far as the author is aware. One of them was reported by Popper of Vienna, and was a case of a fungus gumma of the extensor tendons of the right leg, while the other was reported by Fournier and was a tertiary lesion of the tendo Achilles. The present author reports a case which he observed at the University clinic at Naples, in March, 1908. The patient was a young man of twenty-five with a very virulent, rebellious, specific infection. The gumma developed in the fourth year after the infection, and was situated upon the extensor tendons of the hand and wrist. There was a diffuse swelling, including the soft parts of the entire lower forearm, and the dorsum of the hand. The region affected was markedly cyanotic and edematous. In the neighborhood of the radial aspect of the wrist there was a large and deep ulceration, crater-like, and apparently resulting from the fusion of three of four adjacent smaller ulcers. Additional smaller ulcerations were present in other parts of the infiltrated region. The ulcerations had the typical appearance of gummas. At the posterior aspect of the left elbow there was another gummatous infiltration of the size of a nut. The latter was excised, but sections did not show the presence of the treponema. In this respect examinations of the exudate from the ulcers and of fragments of tissue excised for microscopical examination proved negative. Under a course of energetic, specific treatment, the patient improved considerably, but after leaving the clinic he returned soon afterwards with an aggravated condition. The ulceration had penetrated almost to the bone, and it was found that the tendons were markedly involved. The long extensor of the thumb had been almost severed by the ulceration, and a portion of it was excised for histological study.

The main interest in this contribution lies in the careful microscopical study of the tendinous tissue involved in the gummatous process. The following is a brief summary of the author's findings: The portion of tendon removed showed a considerable infiltration of the granular type, consisting of lymphocytes, plasma cells, epithelioid collections, occasionally giant cells. This process surrounded the tendon and here and there made its way into the interstitial substance of the tendon, fragmenting and disintegrating its fibers. This infiltration gradually went on through the various degenerative phases toward necrosis soft-

tening and ulceration of the tendon tissue. The connective tissue in which the gumma developed, was atrophied and took part in the process of necrosis. The destructive process was much more marked than any slight tendency to regeneration that could be noted. To sum up the pathological process, there was an affection of the peritendinous tissue, with an interstitial gummatous invasion of the tendon proper, and with consecutive atrophy and necrosis of the tendon tissue. The abundant presence of plasma cells, in the author's opinion, represents rather a degenerative phase than an evidence of new tissue formation.

2. MERCURY AND IODIDES IN ANEURISMS OF THE AORTA, Gaucher and Merle discuss three cases of aortic aneurisms, with special reference to the value of antisiphilitic treatment. The authors deplore the tendency of physicians to neglect this treatment in cases of aortic aneurism, owing to the widespread belief that antisiphilitic treatment is not efficient in these cases. Mercury has even been accused of causing the rupture of aneurisms. The authors have obtained excellent results by systematic, prolonged antisiphilitic treatment in their cases of aortic aneurism observed at the Saint-Louis Hospital. They advocate not only treatment with potassium iodide, but also by means of injections of soluble salts of mercury. The benzoate of mercury, in doses of 2 centigrams daily, in intramuscular injections is favored by the authors. Three illustrative cases are reported in which the symptoms were markedly ameliorated by rest, mercurial injections and iodides. The treatment is not only capable of improving these cases, but even has been known to cure aortic aneurism, or at least to diminish the size of the enlargement and to remove all manifestations of the aneurism. Physicians should not hesitate to apply specific treatment, even in cases in which there is apparently a very advanced lesion.

ZEITSCHRIFT FÜR GYNÄKOLOGISCHE UROLOGIE

Vol II. No. 1. February, 1910.

1. Calcified Fibromyoma of the Urethra. By A. Labhardt, Bâsle.
2. The Treatment of Cystitis, Especially of Severe Postoperative Inflammation of the Bladder. By A. Schläfli, Bâsle.
3. The Prevention of Extensive Injuries of the Bladder after Radical Operations for Cancer of the Cervix. By Dr. Kunitsch, Potsdam.
4. Critical Remarks on Functional Bladder Diagnosis after Richard Knorr's Methods. By S. Mirabeau, Munich.

5. The Formation of a Calculus after Cauterization of the Bladder Wall with Silver Nitrate. By Dr. Gutzeit, Neidenburg, East Prussia.
6. Prolapse of the Uterus through the Urethra. By J. Hartman, Jena.
7. Uretero-neocystostomy in Surgical Injuries of the Ureters. By Sante Solieri, Grosseto.
8. Ascending Gonococcus Infection in the Female Urinary Tract. By Richard Knorr, Berlin.

1. CALCIFIED FIRBOMYOMA OF THE URETHRA. Labhardt describes a fibromyoma of the urethra which had undergone calcification. New growths of the urethra are exceedingly rare, if we except caruncle. There are about thirty cases of fibromyomas of the urethra recorded. The patient was a woman aged sixty-three who had suffered for some time from exophthalmic goitre. The patient had never suffered any discomfort until two days before admission, when she complained of dysuria and noticed a swelling in the region of the urethra. On examination a smooth, rounded tumor projected between the labia, and under anesthesia it was found that this swelling was due to a polypoid growth of the urethral wall, inserted about one centimeter within the meatus. The pedicle was tied with catgut, and the tumor removed. The stump immediately slipped back and could not be seen.

Patient made a good recovery, save a slight cystitis, lasting a few days. The tumor consisted chiefly of smooth muscle fibre, and in several places had undergone calcification. The probability was that the tumor existed for a long time without giving rise to symptoms.

2. THE TREATMENT OF SEVERE POSTOPERATIVE CYSTITIS. Schläfli remarks that a severe cystitis is one of the most disagreeable and stubborn complications after operations in women. At the clinic in Bâsle reliance is placed especially upon the salicylic acid preparations, rather than upon the formaldehyde compounds. Of the salicylic compounds the most efficient is aspirin, while diplosal comes next, although it is not so quickly absorbed. Diplosal is preferable when a very rapid action is not necessary. Rest in bed, attention to the bowels, and the administration of diuretic drinks (uva ursi, mineral waters, etc.) also form important elements in the treatment.

The local treatment of cystitis is not carried out as a routine at Basle, the internal treatment being tried first. In the majority of cases the internal medication is found sufficient. In some stubborn

acute and subacute cases, particularly after extensive operations, such as hysterectomies for cancer, etc., local treatment was found necessary. Cystitis is the rule after these operations, and the onslaught of bacteria from the neighboring organs is so great that treatment is powerless. Irrigations with aniodol have given good results in such cases. These irrigations were given once or twice a day, and usually brought about marked improvements within a few days, so that internal treatment was sufficient to complete the cure. Aniodol is a formaldehyde preparation containing allyl sulphocyanide, and is neither caustic nor toxic. Solutions of one part in four thousand were used and were found markedly superior to saturated boric acid solution. Aniodol is an excellent deodorant and is markedly bactericidal.

3. THE PREVENTION OF EXTENSIVE INJURIES OF THE BLADDER AFTER RADICAL OPERATIONS FOR CANCER OF THE CERVIX. Kunitsch urges the necessity of applying preventive measures against bladder injuries, after radical operations for cancer of the cervix. An important measure in the safety of the bladder after these operations is the introduction of an indwelling catheter, securing permanent drainage and enabling the surgeon to apply continuous irrigation. The object of these measures is not only to keep the bladder free from urine, which might injure it mechanically or chemically, and to cleanse the interior of the organ, but also to stimulate contractions of the muscles of the bladder by means of the irrigations. A useful indwelling catheter is a short, double-current tube of German silver seven centimeters in length, projecting into the bladder about one centimeter. The metal composing this catheter should be very thin and light, so as to avoid injury from pressure. The catheter is fixed in place by means of adhesive plaster. The inflow is connected with an irrigator, while the outflow has a rubber tube attached, draining into a large receptacle. By means of clamps the flow of the solution can be easily controlled and the bladder can be filled at any time by simply clamping the outflow. The irrigation was begun by washing the bladder perfectly clean first, and then allowing the solution to trickle gradually in a continuous stream for several hours, or even for half a day at a time. The patient was not disturbed by the irrigation, but even slept while the warm fluid gradually trickled out of the outflow. Usually salt solution was used in these prolonged irrigations. The result was exceedingly favorable, the urine clearing and the musculature of the bladder improving in tone. By this method Kunitsch avoids the disadvantages of the permanent catheter without losing any of its advantages. The

author warns against the use of formalin in the bladder, which in his opinion has a tendency to favor bladder necrosis and fistula. The same is true of the preparatory introduction of twenty per cent. formalin tampons. The author uses but five or ten per cent. formalin, and carefully removes all the excess of solution from these tampons. An exaggerated radicalism in operations for cancer of the cervix should be avoided.

5. THE FORMATION OF A STONE AFTER CAUTERIZATION OF THE BLADDER WITH SILVER NITRATE. Gutzeit reports the case of a young woman aged twenty-one who after a difficult labor, followed by perineal tears and vesical fistulae, had been operated by the usual methods for the closure of these defects. Several months after the operation she complained of dribbling, and a very small fistula, admitting a fine probe, was discovered at the base of the bladder near the internal orifice. There was a mild cystitis. In order to avoid a second operation, the fistula was treated by an application of solid silver nitrate, fused upon a probe. Temporary improvement followed. A month later the urinary disturbances increased and upon examination with the cystoscope a white stone of the size of a hazelnut was discovered over the fistula. Under anesthesia, the stone was seized and crushed with the aid of curved forceps. A subsequent cystoscopy, followed by irrigation removed the remaining fragments of the stone. The fistula had completely closed and the patient made a complete recovery.

The stone consisted chiefly of phosphates and carbonates, enclosing a yellowish-red uric acid nucleus. No foreign body was found in the stone, yet the calculus was undoubtedly due either to a fragment of silver nitrate, or to a bit of necrotic tissue resulting from the cauterization.

2. IMPLANTATION OF THE URETER INTO THE BLADDER. Solieri reports two cases of injury of the ureters in which he was obliged to implant this canal into new places in the bladder. The first case was one of cancer of the cervix in which he was obliged to remove a portion of the pelvic end of the ureter. The second case was an accidental injury to the ureter during an operation for extrauterine gestation under unusual circumstances. He regards uretero-neocystostomy as the operation of choice in all cases in which a piece less than ten centimetres in length has been destroyed in the pelvic portion of the ureter. The traction upon the site of the anastomosis constitutes the greatest difficulty against the success of the operation. In order to avoid the

traction referred to, the ureter should be isolated and taken out of its normal course to a considerable degree, while the bladder can be drawn towards the ureteral stump, or the corresponding kidney can be slightly lowered. The chief point in changing the course and position of the ureter is the maintenance of as straight a course for the canal as is possible, and the care not to destroy its colateral circulation. Some Italian surgeons prefer to use the Boari button, or its modifications, in effecting the anastomosis between bladder and ureter. Solieri does not favor this method, but invaginates the ureteral stump directly into the bladder and fixes it into position with sutures that do not perforate the lumen of the canal (one or two rows of Lembert sutures). In this manner the ureter is surrounded by the bladder wall to the extent of about a centimeter. An important point is that the ureter must not be constricted unduly at the point where it enters the bladder. The author does not favor the use of a permanent catheter after the operation but prefers to have the patient carefully catheterized every two or three hours.

8. ASCENDING GONOCOCCUS INFECTION IN THE FEMALE URINARY TRACT. Knorr reviews the present status of this question. Beginning with urethritis, he remarks that the infection in women becomes but rarely chronic, and hence rarely leads to ascending involvement. Yet, even latent chronic urethritis, which gives rise to no symptoms, may spread to the trigone and the bladder. Normally the female urethra is completely shut off from the bladder, and there is no possibility of a regurgitation of pus from the urethra into the bladder.

The first step in an ascending infection is the involvement of the trigone, which takes place in a small percentage of cases of urethritis in women. A chronic trigonitis may follow the acute involvement of this part. In these cases there are marked urinary disturbances and the cystoscope shows the presence of inflammation. Still less frequent is the complete involvement of the bladder in a gonococcus infection. Very few cases of this type have been recorded.

Unfortunately it is not necessary that a cystitis occur before the involvement of the upper urinary tract. The trigone is so close to the ureteral openings that an ascending infection into the pelves of the kidneys can take place without an intervening cystitis. The trigone should be considered, according to Kalischer, as a part of the urethra. Investigations during the past ten years have shown, without doubt, that ascending gonococcus infection of the pelvis can take place, both in men and women, although thus far there have been reported but a

few cases in which the infection was due to gonococcus alone. Usually the *Bacterium coli* or a staphylococcus were found, and Bunn, as well as Stoeckel, regard gonococcus infection of the pelvis as extremely rare. Knorr, in an experience of ten years with the cystoscope, has not seen a single gonococcus pyelitis. Even if such an infection is found, it need not be ascending, for cases have been reported in which the infection was hematogenous.

Certain predisposing causes, which weaken the resistance of the ureter, favor ascending gonococcus infection. Anomalies and deformities of the ureter, the kidney and the pelvis chemical and mechanical irritation (stone), menstruation, pregnancy, and labor, may be mentioned among the conditions favoring a pyelitis. General diseases, such as tuberculosis, syphilis, anemia, diminish the activity of the muscular and glandular structures of the ureter and favor ascending infection. The three physiological narrowings of the ureter may act as obstructions, in the neighborhood of which dilatations of the canal filled with pus may be found. These narrowings are undoubtedly steps favoring the gradual ascent of an infection. Gonococcus infection of the pelvis in pregnancy seems to be very rare, and apparently there is only one case on record in which gonococci were found. Possibly further investigations may reveal its greater frequency.



OBITUARY.

DR. FOLLEN CABOT, OF NEW YORK.

FOLLEN CABOT, M. D., Professor of Genito-Urinary Surgery at the New York Post-Graduate Medical School and Hospital, Visiting Genito-Urinary Surgeon to the City Hospital, and Consultant at the White Plains Hospital, died at the Mt. Sinai Hospital, of septicemia, on February 13th.

Dr. Cabot came to New York from Boston twelve years ago and rapidly attained a high rank among urologists in the metropolis. A descendant of John Cabot, brother of Sebastian Cabot, the explorer, he was born in Boston in 1869 and was graduated from the Harvard Medical School in 1894. He had many friends in the profession, and his death, so early in a promising career, is a loss to urology.

[NOTE. The Editorial and General Practitioner's Departments have been unavoidably crowded out of this issue.—EDITOR.]

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WILLIAM J. ROBINSON, M. D., Editor.

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SUPRAPUBIC OR PERINEAL PROSTATECTOMY —WHICH?

By F. KREISSL, M. D., Chicago.

MR. R., sixty-eight years of age, commenced having troublesome urinary symptoms when he was fifty-five. The difficulties such as are observed in prostatics increased until at the age of sixty-one complete retention set in and remained permanently, confining him to catheter life for the last seven years. Soon vesical infection was added to his ailment for which the customary treatment was employed, but with very little success. Upon rectal palpation I found a very large prostate, the base of which could barely be reached with the fingertip. The urethra was ten inches long, four inches of which belonged to the posterior portion. Urine cloudy and ammoniacal. Temperature ranging from 99.6 to 101.2. Upon cystoscopic examination the vesical portion of the protruding prostate appeared collar-shaped slightly tapering down toward the anterior commissure. Behind the highest part of the collar the upper part of a calculus could be distinguished.

Owing to the badly infected urinary tract and the bad general condition of the patient, a retention catheter was placed in the bladder, and local and internal antiseptics given for ten days before suprapubic prostatectomy was performed. After opening the bladder the concrement mentioned above was found to be partly lodged in the neck of a diverticulum and was removed. Introducing the finger into the diverticulum through an opening which measured less than one-half of

an inch in diameter, another stone of larger size than the first one was encountered and removed with the aid of a small gall-stone scoop. Subsequently fifteen more such stones were located and lifted out in the same manner, whereupon the prostate was shelled out within a few minutes.

A Freyer tube was inserted and removed after four days. The patient was out of bed in a week and made an uneventful recovery in spite of the bad infection of the urinary tract.

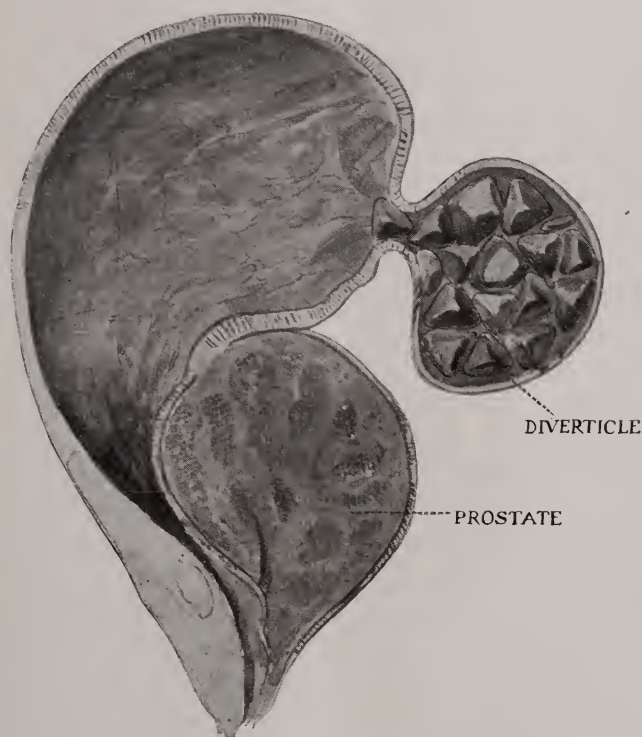
This case, to which the adjoining illustrations refer, is another evidence of the superiority of suprapubic versus perineal prostatectomy, and at the same time it emphasizes the importance of the employment of the cystoscope in prostatics, wherever this procedure is possible.



Actual Size of Prostate Removed

As the somewhat diagrammatical illustration shows, the diverticulum was quite a distance upward and behind the prostate. Its existence and the presence of stones could not be established by rectal palpation, and would not have been suspected without a cystoscopic survey. If the perineal route

had been chosen without a preceding cystoscopic inspection, the stone sticking in the diverticulum might not even have been discovered by the sense of touch. Or if discovered, the surgeon probably would have been satisfied with its removal without suspecting the real condition behind it. The same most likely would have occurred had the calculus been seen through



the cystoscope before the perineal prostatectomy was performed. Furthermore the evacuation of the diverticulum through the perineal route would have been a mechanical impossibility.

TRANSPLANTATION OF RIGHT URETER INTO APPENDIX*

By GEORGE LEE EATON, M. D., San Francisco.

THERE have been many suggestions regarding the use of the appendix surgically, but up to the present time, other than a means for colonic irrigation, no other use has been found. Still, many suggestions have been offered, and I have oftentimes thought that ureteral transplantation into the appendix would be a very advantageous way of disposing of the urine where it becomes necessary to utilize the colon, sigmoid or rectum for a receptacle. And it was only last Sunday that the occasion presented itself wherein my idea might be applied in practice.

The case in question was that of a female, age 34, married ten years, never pregnant, but has been an invalid for the last eight years due to uterine and tubular trouble, probably of gonorrheal origin. An operation was performed about a month ago and revealed multiple fibroids of the uterus and a double pyosalpinx. A hysterectomy was performed. Owing to extensive pelvic adhesions, an undue amount of dissection was required. The woman made a good recovery from the immediate operation, but eleven days later the patient discharged about ten ounces of what proved to be urine, through the vagina, the opening taking place through the cul-de-sac. Cystoscopic examination and catheterization performed March 4 proved that adhesions had incarcerated the ureter between the bladder and the point where the ureter crosses the external iliac artery, causing ulceration, and allowing an extravasation of urine into the free pelvic cavity.

I operated March 6th, and upon opening the abdominal cavity I was confronted with adhesions everywhere, which necessitated a long tedious dissection to permit my reaching the ureteral rupture, which was eventually found at the place above stated. The ureter was liberated and severed at the rupture, and an attempt made to transplant it into the bladder

* Read before the San Francisco Urological Association, March 18, 1910.

fundus, but this was impossible, as the ureter was at least two inches short. Necessity being the mother of invention, I immediately sought other means, and as the appendix was in plain view, having been dissected out from adhesions, I decided to transplant the ureter into the appendix. This necessitated bringing the ureter through the posterior parietal peritoneum; thence through the peritoneum forming the inferior ileo-cecal recessus. The appendix was amputated one and one-half inches from its cecal attachment, the peritoneum being cut so as to form a cuff.

The ureter by two lateral stitches was drawn into the appendix to the extent of one-half inch and anchored, and a row of 00 black silk united the appendix to the ureter. The cuff of appendicular peritoneum, above referred to, was then drawn over the uretero-appendicular attachment, and anchored by a few interrupted catgut sutures. The abdomen was then flushed with normal salt solution and closed in the usual manner, by allowing a small cigarette drain to occupy the lower angle of the incision.

The after treatment consisted of the usual procedure following laparotomy. Bowels were moved on the second day, and were found to contain quite a quantity of fluid. Since then the patient has had from one to three liquid evacuations during the 24 hours, the feces giving a urea test of one to one and two-thirds per cent. I would advocate this special anatomical point for ureteral transplantation where it becomes necessary to seek other organs than the bladder, for the following reasons:

1. There is less putrefaction.
2. The natural canal facilitates transplantation, and obviates mutilation of the muscular coat elsewhere.
3. There are less chances for peritoneal infection.
4. The operation does not interfere with peristalsis, and lessens the chance of ileus.
5. The ileo-cecal valve folding inward on the colon forms a pseudo-valve over the appendicular orifice, also a natural valve. The valvular processus vermiformis protects this opening from fecal contact.

All of which, more or less, lessens the chances of ascending infection.

On April 2nd the patient had fully recovered from the immediate effects of the operation and was doing remarkably well, with no inconvenience whatsoever.

323 Leary St.

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THE TREATMENT OF MALIGNANT DISEASE OF THE PROSTATE GLAND*

By JOSEPH B. BISSELL, M. D., New York.

Visiting Surgeon to St. Vincent's and Bellevue Hospitals.

OUR knowledge of malignant disease of the prostate is still rather hazy and indefinite. There are cases which are undoubtedly carcinoma, then there is another set of cases quite numerous, which are histologically cancer, but also closely allied to simple inflammatory hypertrophy. These specimens when examined by the pathologist are pronounced malignant, and yet upon complete removal of the prostate and all of the tissues containing the evidences of malignancy these patients get well and remain well for years. These might be called borderline cases. Clinically they act like those of simple hypertrophy of the prostate. After removal there may be no return of the disease, or on the other hand death occurs later, following symptoms of malignant growth.

Malignant tumors of the prostate, for the purpose of discussing their treatment, may be divided into two classes, sarcomata, and that type of malignancy which is designated under the general title of carcinoma.

Sarcoma of the prostate is uncommon, especially at the age at which these patients most frequently present themselves for treatment. It is more frequent in children. It is exceedingly rare in patients over 45 years of age. This tumor grows very rapidly. The course of disease from the time of its first

* Read before the American Urological Association, New York Society, March 23, 1910.

evidences until the death of the patient is usually from three to six months. When the patient lives longer than this, the tumor may become very large.

The Pathology of Cancer of the Prostate.

The discussion of malignant disease of the prostate gland in this paper will be limited to the consideration of the carcinomatous invasion of the prostate. This malignant tumor may be either primary or secondary. If secondary, it is usually either a metastatic manifestation, or the result of extension from the neighboring organs, most frequently from the rectum.

It is a curious fact that seldom does this disease arise in the bladder and extend into the prostate. Usually the rule is the other way; it begins in the prostate and extends into the bladder. Malignant disease beginning in the bladder itself usually involves the prostate gland secondarily, if at all.

Microscopical examination of several hundred cases of cancer in the prostate, shows that as a rule its early states are always found within the capsule of the prostate. It invades the prostate itself by a direct extension through the stroma, and by extension along the ducts. It extends along the course of the lymphatics into the neighboring lymphnodes and into the seminal vesicles and the vasa deferentia. The fascial structures hamper its progress, so much so, that the fascia of Denonvilliers is the most effective protection to its growth posteriorly, and accounts in a way for its slow development. The most common site for the beginning of cancer is in the posterior sub-capsular stratum. The mucosa and sub-mucosa of the urethra and bladder are also very resistant to the expansion of the cancer.

The age at which carcinoma is most frequently found is from 60 to 70. In the statistics given by most writers 68 to 70 per cent. occur between 50 and 70 years of age. Of the remainder about 15 per cent. occur over the age of 70, leaving a small percentage occurring in patients under 50 years of age.

Relation to Prostatic Hypertrophy

Albarran states that 14 per cent. of all cases of supposed benign hypertrophy, if examined closely, will be found to have more or less pronounced malignancy. Young states that in his patients carcinoma occurred in about 20 per cent. of the cases of prostatic enlargement. Others have estimated as high as 50 per cent. In over seven hundred collected cases of hypertrophy of the prostate cancer is frequently reported as having been found out only after a section of the simple hypertrophied prostate, either before removal, or after the operation of prostatectomy, when the gland was examined. It is either deeply situated in the lobes, or in the fascia posterior to them. As section of the prostate for the purpose of examination, is more often omitted than performed, we can assume that many cases of carcinoma thus escape our notice. The impossibility of telling early in the disease whether the growth is a benign one, or whether it has in it the beginnings of malignancy, adds to the difficulty of treatment of these cases. It is impossible accurately to estimate from the symptoms when the first evidences of carcinoma appear. In many cases the cancer is found only after removal of the hypertrophied gland. Such being the case it is easy to believe that a few of these prostatic malignant growths escape our observation altogether. Such cases may have been, and are, regarded as cases only of hypertrophied prostate till they come to operation, or die of inter-current disease, without ever having the carcinoma discovered.

Diagnosis

Cancer of the prostate usually begins within the capsule of the lobes, and may remain for a long time within their confines. When it advances, it does so along the ejaculatory ducts into the place above the prostate between the vesicles and the bladder, and also beneath the fascia of Denonvilliers. It may extend under the surface of the trigone, and along the lymphatics leading to the lateral walls of the pelvis. It is not until after involvement of the deep lymphatic structures takes place, as a rule, that attention is attracted to the disease. Hence the difficulty as to its proper treatment.

The early symptoms of cancer of the prostate so resemble those of that other frequently occurring condition, hypertrophy, that as a rule it is not until too late that cancer is recognized. The cancer is often found in the lobe itself, and not infrequently in the centre of a hypertrophied lobe; therefore, the only symptoms present in such cases are those of an ordinary hypertrophy. The hypertrophy sooner or later becomes markedly prominent in character. Enlargement of the lymphatic glands does not help us to an early diagnosis, because it occurs late in the course of the disease.

Pain is somewhat more characteristic of cancer cases, because it begins quite early. Bleeding is not a valuable sign of the presence of cancer; in fact it occurs much more often in simple hyperplastic cases with ulcerative cystitis or calculi. Loss of weight and cachexia also, as a rule, arrive too late for radical treatment to be of use. A certain irregularity of the hard, stony enlargement of the prostate is a not infrequent symptom. Invasion of the seminal vesicles is usually present in the shape of well marked induration. The situation of the tumor, the stony hardness of the prostate, or that portion involved by the carcinoma, and the absence of intravesical outgrowths are the three most pathogomonic signs.

Prognosis

After deep involvement of the lymphatic structures has taken place radical operation promises little, either for immediate recovery from the operation, or for ultimate return to health. The markedly low vitality of these patients is conducive to greater severity of shock, and is another source of grave risk. The necessarily prolonged and severe operation of complete excision cannot be carried out without considerable danger. Owing to the exigencies of the situation early radical operation is, in most patients, practically out of our reach. To the trained surgical mind, the greatest hope of cure of cancer rests still upon the knife, and the knife acting deeply and widely.

Results of excision of prostatic cancer, except in its early stage, are discouraging. The handicap of late recognition in

a disease such as cancer, where the best known remedy is the knife, is in many cases almost insurmountable.

Where the malignant growth is in an organ essential to life, and where it has extended so far as to involve structures which cannot be eliminated from our anatomical economy, or where its removal would destroy life-sustaining functions, and where the distress and discomfort and pain following an incomplete operation is unbearable, the outlook is far from a cheerful one. Yet despite this gloomy prognosis much may be done to delay the progress of the disease, to relieve the symptoms, to restore to the patient more or less comfort, and to give back to him and his family the only thing in a diseased life worth having—hope.

Treatment

In these days of sera, of vaccines, of bacterins, of anti-toxins, etc., it would seem as if some method of interference with the growth of cancer by such means would yet be available. However, unless the new cancer serum exploited in the newspapers within the last few days promises more than its predecessors, we must still rely upon surgery to prevent, or retard, in some way the usually fatal course of this disease.

Fortunately for the patient, we have learned that this variety of cancer, in this location, if undisturbed, progresses slowly. Cases have been known where the patient lived for six or eight years after the discovery of cancer in the prostate.

The treatment of malignant disease of the prostate then resolves itself into two varieties of surgical interference, palliative, and radical. The radical operation means of course the complete removal of the cancerous growth, the contiguous extensions, and all the lymphatic glands and cancerous infiltration. It is easy to see that unless we recognize a cancer very early in its growth, such a desirable procedure is a practical impossibility. The indications for treatment by palliative measures are to minimize as much as possible the functional activity of the affected organ, and to avoid insult and injury to the tissues, thus exciting the growth into activity.

Relief by means of catheter life, particularly in the later stages of the disease, is impractical. Pain and difficulty, due to obstruction at the internal opening, interfere with the passage of the instrument, and prevent its retention in the urethra. Theoretically, irritation and activity of the prostate muscles should be avoided by keeping the urine out of the bladder, or by draining it as soon as possible. If we could sidetrack the bladder, and still retain its physiology, we would put the prostate and the adjacent structures very much at rest.

Permanent drainage, either of the bladder or the kidneys, are the two methods which appeal to us from a surgical and mechanical point of view. The most complete procedure is renal drainage, which absolutely sidetracks the bladder, but the most practical method is that of cystic drainage. Cystic drainage in the perineum is too near the seat of the disease to be considered very satisfactory. Drainage of the bladder in these patients should be confined to the supra-pubic route. This is entirely practicable, and has been carried out in many cases, much to the comfort of the patients, and to the prolongation of life. Renal drainage is ideal, so far as concerns the absolute rest of the bladder function, but it has been practicable in only a few cases. The writer had one case in which double lumbar ureterostomy was performed four years ago, for malignant disease of the prostate, and the patient is still living, does his work as a carpenter, and while not at all happy and contented, is able to work and support his family. The greatest difficulty in this operation is to afford comfort to the patient afterward. With two continually working ureters emptying into a sinus on either side of the spinal column in the lumbar region, without any really practical reservoir to hold the flow of urine, it is easy to see how difficult it is to make a man comfortable and contented with his lot in life. A patient's rest at night is badly broken by the constant flow of urine, and the consequent ulceration of the skin surface renders it tender and sore, and is frequently a source of local irritation and infection.

If some way could be devised to control the difficulties above-mentioned by means of a satisfactory artificial bladder, or otherwise, this method of treatment would offer great hopes

for the prolongation of the patient's life and comfort. Actually, however, we are limited in our palliative treatment to some form of drainage of the bladder. The cancerous growths usually begin deeply in the prostatic tissues and advance very slowly, more commonly toward the rectal aspect, and along the course of the ureters, and less frequently towards the bladder. Some form of supra-pubic drainage therefore, seems to be logically indicated. Supra-pubic drainage may be instituted under local anesthesia, but a general anesthetic is preferable, because this gives an opportunity to examine at leisure the inside of the bladder, and allows one to make more elaborate preparations for the permanent fistula. The operation is usually performed in the following manner:

A transverse incision is made about three inches in length, a finger's breadth above the pubic bone, dividing the skin and subcutaneous tissues down to the muscular fibres. Then a median incision, exactly through the middle line as close as possible to the connective tissues overlying the bladder in the space of Retzius. The peritoneum is readily pushed up and held there with a retractor, by an assistant. The connective tissues and fat, now exposed, must be divided cleanly and precisely by a sharp dissection down to the bladder wall. The bladder is hooked up by stay ropes and heavy silk sutures on a short curved needle, and a vertical incision three-eighths to half an inch is made into its anterior wall, through all its coats, opening the bladder cavity. This incision in the bladder is lengthened far enough to insert the finger and examine the internal surface of the bladder, or to allow an ocular inspection. A firm, soft, rubber catheter, No. 22 French, is inserted to the level of the internal meatus, or to the bottom of the bladder behind it. The cut edge of the bladder wall is inverted and fastened by a circular stitch around the catheter, one side of which pierces it. The remainder of the bladder is closed around the catheter by the Gibson method. The wounds in the remaining tissues are sewn up with buried sutures of fine catgut, No. 1, or No. 0. The skin wound is sutured with silk-worm gut or silk thread. This method of suturing, if carried out carefully, will prevent any leakage around the catheter, and

primary union takes place in a few days. The catheter hanging out of this wound may be fastened with a sterile adhesive strip, securing it to the skin, and preventing tension. It is left long enough to come through all the dressings on the belly wall, and is attached in the usual way to the drainage bottle by means of a glass coupling tube, and a larger piece of rubber tubing. At the end of a week, the drainage bottle is removed, the catheter is separated from the remaining drainage tube, and the open end of the catheter stoppered with a cork or some other mechanical device. The patient is taught to empty the bladder before its capacity is reached, or if he wishes, his catheter may be connected with an ordinary rubber urinal worn inside the trouser-leg, and thus the necessity of the constant manipulation of the catheter is avoided. The bladder can be washed out if necessary through this permanent sinus, and the patient is taught to keep the catheter sweet and clean by regular removal and washing.

These patients remain in bed only a few days after the operation, soon become very comfortable, and quickly learn how to manage the catheter which extends out of the abdominal wall. The pain, hematuria, and frequency of micturition all cease, and aside from some slight irritation around the new opening, the patient is very comfortable.

Illustrative Clinical Histories

The following three cases are characteristic of the symptoms and course of the disease:

I. Mr. J. C., aged 58, presented himself to me in January, 1904. He was a widower, and denied all history of venereal disease. The present trouble began about a year ago, with pain in the bladder, pain in the back, and frequency of urination, which had become quite marked in the past few weeks, so that he had to urinate so often at night that his sleep was badly broken. The urine was clear, except for a few blood cells, seen with the microscope. He had lost over 35 pounds in weight in the last twelve months, has extreme

cachexia, and looks like a very sick man. Prostate moderately enlarged, stony-hard, irregular in shape, the right lobe much larger than the left. The rectum is adherent to the growth. The tumor projected so markedly into the rectum that the patient complained of difficulty in the movement of his bowels. Meatus was small, and the patient refused to allow me to enlarge it. Cystoscopy was not performed. Assuming that the bladder cavity was very much infringed upon by the size of this tumor, each urination amounting to a few ounces only, I proposed to perform the renal operation, bringing out the ureters in an artificial sinus in the back, hoping in this way to relieve him from the severe pain of micturition, and thus by giving him rest at night to relieve the bladder of its function and build up the patient's general condition, and also by relieving the activity of the bladder, to delay the growth of the tumor.

On February 2nd, 1904, a double lumbar ureterostomy was performed, and the stumps of the ureters were cut off about three inches below the pelvis of the kidneys. The stumps were brought out of the lumbar opening, where short catheters were inserted and sewn in, the lumbar wounds being sewn up around these catheters at each side. In a few days the patient was out of bed, wearing on his back an apparatus devised for the collection of the flow of urine. And here is where our difficulty began. We have never been able to make a satisfactory reservoir outside of the body to take the place of the normal bladder. The man is still living, his malignant growth seems to be quite inactive in its progress; he has no pain, and of course, no frequency of micturition or hematuria. The growth in the rectum has increased somewhat in size. The difficulty of evacuation of the bowels is still present, but not very troublesome. The man's general condition has greatly improved. He began to gain in weight at once after the operation. The cachexia, which was well marked, has disappeared. He has a good appetite, sleeps well except for the mechanical trouble due to the difficulty of disposing of the urine. He looks quite a well man. His comfort is considerably interfered with by the ulceration and inflammation of the skin around the

ureteral openings in the back, due to the leakage of urine at the junction of the sinus with the rubber tubing extending down into the artificial reservoir for the collection of urine.

II. Mr. S. H. S., 69 years old. Married. This gentleman was in fair health up to the time of his coming under my care, six years before the operation, which was performed on April 28th, 1905. At the time of his first visit he suffered from frequency of urination, urgency, and pain during and following the act. His residual urine was usually 8 ounces, sometimes as low as 2 ounces. Hematuria occurred occasionally during the eight weeks preceding the operation increasing in amount and frequency during the past few days, and it was this symptom which finally led him to submit to an operation. Examination at the time of operation showed a somewhat irregularly enlarged prostate projecting into the rectum, but apparently not attached to the mucous membrane of the bowel. The urine contained sugar, about a quarter per cent., considerable albumin, hyaline and granular casts, and a large quantity of pus, which came from his cystitis. Perineal prostatectomy was performed. There was great difficulty in removing the prostate from the adhesions behind, and parts of the rectal mucous membrane came away with it. It was abnormally hard to the touch, and the examination of fragments by Dr. Harlow Brooks showed carcinomatous infiltration. So much of the bladder wall was involved that no attempt was made to bring the edges of the bladder wound together. A perineal tube was inserted for drainage, which, however, was not very satisfactory. The patient never recovered from the coma into which he went about 48 hours after the operation, and died in about ten days.

This case illustrates the necessity of early interference before the growth has become melted into the surrounding tissues, such as the mucous membrane of the rectum and bladder, and surrounding structures. Also the difficulty of early diagnosis, as well as the disadvantages of perineal drainage as a palliative treatment. It illustrates also that cases of carcinoma of the prostate often remain unsuspected until discovered at the

time of the operation of prostatectomy, the early symptoms of cancer and of hypertrophied prostate being so similar.

III. D. W. M., 52 years old. Married. Admitted to the hospital April 10th, 1908. Began to have difficulty in micturition probably about one year ago. Has no residual urine, but frequency is well marked. Has to arise five or six times at night. Has pain both before and after urination. Has had slight hematuria. Has lost weight and appetite, and is pallid and cachectic. He is a periodical drinker, but otherwise has no bad history. For the past few months has had severe attacks of retention of urine, and has been catheterized with some difficulty. Now has a moderate acute cystitis.

Examination shows the prostate to be considerably enlarged, very hard and stony to the touch, smooth and irregular in shape, adherent to the rectal mucous membrane, with hard nodules coming almost through the rectal lining. Cystoscopic examination was made with difficulty, and showed a not markedly purulent urine, and a symmetrically enlarged prostate occupying a considerable portion of the bladder.

His pain and frequency and loss of sleep has become almost unbearable. Catheterization became more and more difficult, and the desire for micturition and the pain preceding it almost incessant. The infiltration of the new tissue into the rectal surface is striking, the nodules projecting separately into the cavity of the rectum till they feel like part of the mucous membrane itself. I therefore suggested a supra-pubic drainage, which was agreed to. The operation was done under general anesthesia. During the operation the opportunity was taken for careful examination of the bladder. The growth was seen to have forced the posterior bladder wall forward toward the pubis to such an extent that the internal meatus was almost on a level with the lower border of the pubic arch, as was also the base of the bladder behind the urethral opening. The mucous membrane covering this growth was blue and congested, smooth and not ulcerated. The capacity of the bladder was about four ounces. No nodules such as were felt per rectum were seen in the bladder. The ureteral openings were seen

widely separated from each other, imbedded in this tumor structure, but with the ureters apparently free from malignant growth. Supra-pubic drainage was installed. The patient recovered very rapidly from the operation, and in a few days was perfectly comfortable as to bladder and rectal symptoms. He left the hospital at the end of six weeks, and returned to business, at which he has been active until the past few weeks, when troublesome rectal symptoms again began to disturb him. He is now failing in health and strength, losing weight, but is free from pain in the bladder, and of course from any urinary symptoms. He is a boss plumber, still goes out to his work occasionally and oversees his men, his greatest complaint being the difficulty of moving his bowels. Complete excision of the cancer in this patient was impossible. His general condition of health when he entered the hospital was unbearable, and he would have been dead in a few weeks of pain and exhaustion. Supra-pubic drainage relieved him of his worst symptoms, made him quite comfortable, and prolonged his life, so that he was able to provide for his family, and live in comfort for several years after a painful disease had threatened him with its immediate results.

Conclusions

Carcinoma of the prostate, as a rule, develops to a late stage without symptoms distinguishing it from an ordinary hypertrophied prostate.

Glandular enlargement is never marked, and seldom present until involvement of the contiguous structures and other symptoms have already confirmed the diagnosis.

The bladder invasion occurs late in the disease, and as a rule, takes place by way of the trigone through the lymphatics and diseased tissues anterior to the seminal vesicles.

Carcinoma remains confined to the prostate for years after the symptoms are well marked. So slowly does it develop, that its presence, obscured by the co-incident simple hypertrophy, is often not disclosed until revealed by the knife at the time of operation.

A conservative operation is never indicated. The choice is fixed between palliation of the symptoms, and complete excision of the growth with the infiltrated tissues surrounding it.

Supra-pubic cystotomy, with continuous drainage, is the operation of election for this condition. It relieves the symptoms, prolongs life, and makes the patient as comfortable as possible under the circumstances.

If it could be proved that hypertrophied prostate is a probable exciting cause of malignant disease, the early removal of the prostate and its annexa would be indicated in every case of hypertrophy. The perineal is the route of choice for this operation.

46 West 55th St.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

THE TREATMENT OF MALIGNANT DISEASE OF THE BLADDER*

By ROBERT HOLMES GREENE, M. D., New York.

Professor of Genito-Urinary Surgery at Fordham University. Visiting Genito-Urinary Surgeon to the City and French Hospitals.

OUR knowledge on the treatment of malignant disease of the bladder in many aspects has not as yet been crystallized. Reference to some of the disputed points connected with the surgery of malignant disease of the bladder will again be made later on in this short paper. The literature, too, on bladder surgery is, as far as the experience of the writer goes, vague and misleading, and much of it at variance with his observations as made from clinical material. The important question concerning the treatment of malignant bladder disease, is its prevention. Cystitis is as common, if not more so, in women as in men, and chronic inflammation is apparently very often, at least, a prime factor in the causation of malignant disease later on. When we examine some of the statistics on bladder tumors in the work of Küster, (*Archiv. f. klin. Chir.*, Berlin, 1891), we find that tumors of

* Read before the American Urological Association, New York Society, March 23, 1910.

the bladder occurred in 179 men and 86 women. B. Motz (*Congrès d'Urologie*, 1898), found 63 cases of tumors of the bladder causing death in 60 men, three in women.

These figures tend to show how frequent a causative factor the prostate is in bladder tumors. They indicate the necessity, first, of the early recognition of malignant disease of the prostate; second, the necessity of the removal of the prostate together with any bladder growth when practical, even if the growth is not necessarily attached to the prostate. Thirdly, malignant disease of the prostate is often preceded by hypertrophy of the prostate, while the latter is an after result of chronic inflammatory processes. This view, of which the writer was the first advocate in the English language, although disputed by some, is gradually becoming popular. The necessity then arises for the most careful treatment of chronic inflammations which occur at or in the neighborhood of the neck of the bladder, from whatever cause.

Coming now to the surgery of malignant new growths of the bladder, we must first of all note that often it cannot be determined beforehand whether or not a certain growth is malignant. Even the microscopical findings may be deceitful. It is probably good surgery when a given growth is single and occupies a portion of the bladder wall which can be easily resected, to take out with the growth a portion of the bladder wall, taking care to make the incision of such shape that a good apposition of the edges of the cut can be obtained. Unfortunately, from the writer's experience, and from the statistics of many other observers, single growths of the bladder are rare.

Papillomata are, as we all know, the most frequent among bladder tumors. Are papillomata, as ordinarily seen, in the bladder multiple or single? Fenwick (*"Tumors of the Bladder,"* London, 1888) from an examination of the museums of Europe found 30% of the papillomata of the bladder multiple. Various statistics have been collected since the publication of Fenwick's article. Albarran says that from 30 to 40 per cent. of vesical papillomata are multiple. Frisch states that one-half of his 201 cases of papilloma were multiple. Desnos (*Assoc. Francaise l'Urologie*, 1905), out of 103

cases found but 25 with a pedicle that could be ligated. These show a higher proportion to be multiple, than do the statistics of Frisch and Zuckerkandl who state that 25% of vesical papillomata are multiple.

What shall we do, then, with a growth which is multiple or diffuse? Shall we simply drain the bladder, or shall we remove it in part, if not in whole? So far as the writer's present experience goes, patients seem to live longer and to be more comfortable when the whole growth cannot be removed if a part of it is taken away. It is better, when it is practical to remove a part, to remove that part rather than simply to establish permanent drainage. One of the questions which has not yet been fully decided is to the value of Nitze's work in removing papilloma of a benign character through an operating cystoscope. His statistics are as follows: Out of 103 benign papillomata, after three years, 71 had not returned; 18 had returned; 12 were not accounted for. (*Weinrich, Assoc. Française d'Urologie, 1905*).

Another point which has not yet been decided is as to the value of complete extirpation of the bladder and permanent drainage through the kidneys. The writer has been informed recently of one case of complete bladder removal by a colleague, in which the results were not satisfactory. He has at present under his care a case operated on by one of his colleagues in which double kidney drainage had been instituted, without removal of the bladder, and he had another case of this kind under observation for a time about a year ago. He has been unable to make up his mind from the observation of these two cases as to the value of this method. Internally, though it may seem a bit old-fashioned, the writer is a believer in the prolonged and continuous administration of arsenic in cases of malignant tumors of the bladder. The difficulty with the cases of double ureterostomy lies in making provision for taking care of the urinal. In a case now in the writer's service at the City Hospital, this was done quite successfully by inserting into the ureteral fistulæ rather snugly fitting catheters, No. 20 F, and then connecting these with tubes leading into an ordinary urinal hung in front.

TREATING GONORRHEA BY A NEW METHOD

By J. B. McNERTHNEY, M. D., Tacoma, Wash.

IN the Journal of the American Medical Association, October, 1908, the writer reported a method of treating gonorrhea in the male by irrigation and suction and illustrated special catheters designed for cleansing the urethra and applying any desired antiseptic or medication. The

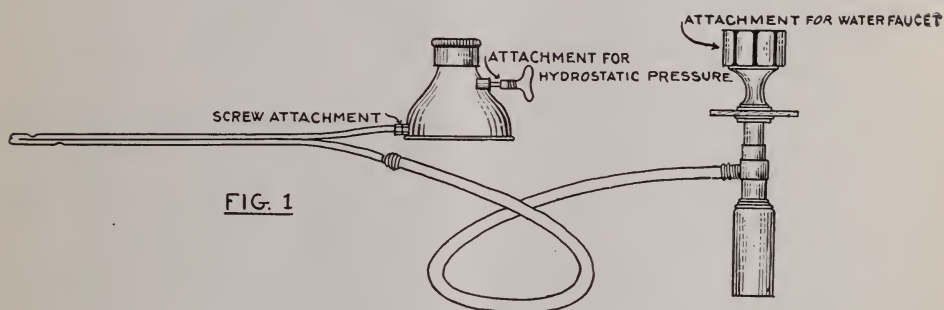


FIG. 1

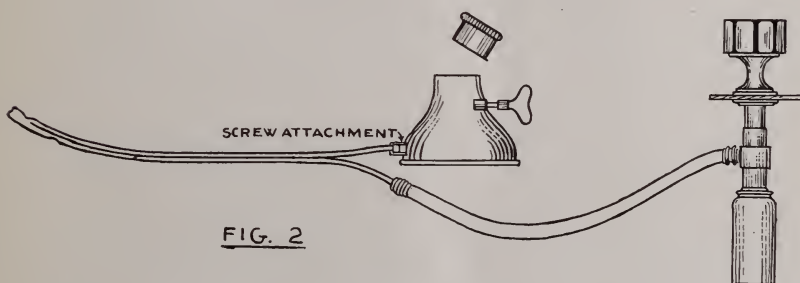


FIG. 2

method has now been tried in office practice for some four years and the results have been better than with any other plan of treatment.

The original apparatus shown in the Journal consisted of special recurrent catheters differing from the many styles of recurrent catheters only in that they are well grooved on two sides and that the lumen is continuous at the tip.

To one arm of the catheter may be attached hydrostatic pressure (Valentine); to the other a suction apparatus such as the little apparatus known as the saliva evacuator, which

dentists employ to keep the mouth free of saliva during long dental operations. By alternating, every second or two, irrigation with evacuation, any part of the urethra can be cleansed with any antiseptic, thus removing pus, shreds and in chronic conditions applying a marked degree of suction, really producing a suction hyperemia (Bier).

I have simplified the apparatus as shown in the illustration. It is now made with special recurrent catheters, a receptacle and suction apparatus.

Any of the usual antiseptics may be used. My choice of treatment has been to slowly and alternately run through from the receptacle a one per cent. solution of silver nitrate followed by normal saline.

In acute cases an application of silver nitrate solution is put within the urethra over the field of infection and only one treatment is given until reaction is established. This cuts down the field of infection and should be repeated, if necessary in two to four days. The usual bathing in hot antiseptic solution is carried out.

The suction principle of the apparatus may be used in bladder washings and in drawing off the excess of urine in catheterizing the ureters.



GENITAL CANAL BLOCK FOLLOWING GONOCOCCUS INFECTION. C. E. Barnett, of Fort Wayne, Indiana, (*Annals of Surgery*, March 1910) emphasizes the role of a block somewhere in the genital canal in the origin of sterility. Primarily this condition is due to deep urethral infection. He found the ejaculatory ducts blocked in a majority of the pathologic subjects in whom he made bladder dissections. Barnett believes that when block occurs in the ejaculatory ducts the vesicles and the vasa become retention cysts, and the vesicles frequently become so adherent to the prostate that, when the latter is removed, the vesicles are also carried with it. Barnett does not offer any surgical cure for the obstruction of the genital canal, but believes that the remedy lies in prevention against gonococcus infection.

EDITORIAL

THE ACTION OF RADIUM ON HYPERTROPHY OF THE PROSTATE.

The rays thrown off from radium are of three kinds, each possessing distinct properties. They are designated under the name of A, B, and V rays. The A rays have an intense action on the superficial structures, to such an extent that a single application of short duration easily produces a burn of the integuments, but their penetration is slight. The interposition of a very thin sheet of metal is sufficient to prevent their action.

The B rays, which are far more numerous, are sub-divided into soft B, similar to the A rays, and into medium B and hard B, which are very penetrating and appear to possess an elective action on certain tissues. The V rays, which are far less numerous, have a very marked penetrating power, being able to go through lead sheeting 10 centimeters thick.

It results from these properties that it is easy to filtrate the various radium rays by interposition of metallic or other screens. The metallic screens decompose the B rays, which gives rise to secondary rays, super-penetrant rays, only slightly irritant to the surface of penetration and acting on the deep-seated structures very slowly, thus necessitating a rather prolonged application. The non-metallic substances, such as rubber or thick paper, arrest the soft A and B rays and allow the V and hard B to pass through.

Starting from these facts, Desnos has experimented with the action of radium on prostatic hypertrophy. In order to reach the prostate he utilizes the rectum and urethra, carefully protecting the mucosa against the caustic action, which he has been able to accomplish by the use of very simple instruments. In the rectum, he uses a large rubber tube, similar to the ordinary rectal tube, but not perforated. Near the closed end of the tube the lumen is brought nearer one of the walls, thus making the latter much thinner than the opposite wall and it is here that a small silver cylinder containing the radium is placed and the thin wall of the tube is brought in direct apposition to the prostate.

For the urethra, sounds are used in the ends of which, under a gum varnish, is placed a sheet of lead or aluminium in the concave portion, so that the anterior portion of the urethra is protected.

The dose of the active substance, namely radium bromide, varies from one to five centigrams and is placed in small silver cylinders having a diameter of from one to $1\frac{1}{2}$ millimeters. An ampoula weighing 1 centigram is usually sufficient. When acting through the rectum, the tube containing a cylinder of radium is introduced and pushed up to a point which has been first ascertained by rectal examination. For the urethra the dimensions and the irregularities of the prostatic portion are first established by a bulbous bougie, so that the tip of the sound containing the radium may be placed in the proper location.

The application of the radium is far more efficacious given through the urethra than by the rectum, the latter route being employed only in those cases where the urethra does not tolerate the use of the sound and in those cases of enlarged prostate, where the type of induration leads one to suspect the commencement of a malignant degeneration. The duration of the application varies from twenty minutes to an hour and fifty minutes, and, in order to come to a conclusion as to the dose of radium to be used, one should note the intensity of the reaction produced. This reaction consists in a sensation of weight and burning following within a few hours the application of the treatment. Large doses of the metal and a short duration of application are better adapted to hard prostates with relatively little congestion. Forty-eight hours is usually the minimum interval between the applications. In some cases the patient should be allowed to rest for three or four days or even longer. Twelve applications is the minimum and often from fifteen to twenty must be made.

The indications and contraindications of this treatment must be derived from both the local and the general conditions. The radium treatment is indicated when characteristic disturbances of micturition take place, but particularly when retention is present.

Nevertheless, the indication for prostatectomy remain and the application of radium merely represents a palliative treatment. In old men having retention with a small amount of hypertrophy and in subjects the possessors of a very large prostate, radium has given no result. It is particularly adapted to prostates of medium size, where the hypertrophy involves the lateral lobes. In young subjects a more rapid cure is obtained, but it should be pointed out that infection is a very unfavorable condition.

Of 16 prostatics submitted to the radium treatment, Desnos obtained no improvement in three, while in the 13 others an improvement or a cure has been obtained and no complication occurred during the treatment. The most remarkable result was the effect on the retention.

Five times the retention completely disappeared after from twelve to fifteen applications; it occurred gradually in 2 cases, while in three others it suddenly disappeared within eight days, and this result has been maintained respectively eight months, seven months, six and one-half months and four months. In none of the patients was any change in the size of the prostate made appreciable by rectal examination; but a softening of the gland was almost always noted.

Consequently, two phenomena, which appear quite contrary to each other, are to be noted, viz.: that the size of the prostate remains the same, while retention diminishes. But it is well known that in the production of retention the most important element is the increased vascular development and congestion. Now, generally speaking, radium possesses an influence on the congestive phenomena and in several patients the large and intense red projections surrounding the neck of the bladder and covering the prostatic projections have been seen to disappear by the aid of the cystoscope. The brilliant results obtained in the treatment of angiomas have demonstrated the action of radium on the vascular apparatus, and, without wishing to force the analogy, it is certain that the telangiectasis of the hypertrophied prostate is a manifest fact, and that it is this that is favorably influenced by the radium rays.

A NEW UROLOGICAL JOURNAL

We have received from Catania, Italy, the first number of *Rivista Urologica*, a new journal of urology, edited by Dr. F. Musumeci-Grasso, with the collaboration of a number of distinguished Italian and foreign urologists. We are pleased to welcome *Rivista Urologica* into the circle of urological journals, and shall regularly abstract the contents of each issue in our department of "Urologic Literature." The first number of the new journal contains but one original article by an Italian author, the rest having been contributed by (or translated from) French and German Surgeons.

At the annual meeting of the American Urological Association, New York Society, the following officers were elected for the year beginning May 1, 1910:

President:	Edward L. Keyes, Jr.,
Vice-President:	Terry M. Townsend,
Secretary:	G. A. DeSantos Saxe,
Treasurer:	Walter B. Brouner.

Executive Committee:

Victor C. Pedersen,	William J. Robinson,
Terry M. Townsend,	C. R. O'Crowley.

REVIEW OF CURRENT UROLOGIC LITERATURE

ZEITSCHRIFT FÜR UROLOGIE

Vol. IV., No. 3, 1910.

1. Some Remarks Regarding Pyelonephritis. By Ernst Küster.
2. Electric Treatment of the Prostate by Means of the Interrupted Faradic Current. By G. J. Müller, Berlin.
3. A Contribution to the Study of Encysted Stones in the Bladder in Women. By Ernst R. W. Frank, Berlin.
4. The Origin of Phosphaturia in Gonorrhea. A Critical and Experimental Study. By H. Lohnstein, Berlin.

I. *Pyelonephritis*.—Küster criticises Kapsammer, whose article on the subject appeared in the January number of the same journal, remarking that the aforesaid article contained some surprising statements with which Küster's name was connected. Kapsammer wrote: "A number of authors still hold to the view that ascending infection is either exclusively or prevalently, noted in cases of pyelonephritis," and mentions Küster's name among those who are still so far behind the times. Küster, in the reply, points out that his statement to that effect had appeared in 1902 and that he had since then changed his views. In fact, Küster claims to have been the first to oppose the teaching of the French school regarding the frequency of ascending infections, and points to pages 282 and 347 of his book on renal surgery as evidence of this. Küster furthermore criticises Kapsammer for using the word "pyelitis" in the title of his article, when as a matter of fact he confesses in the first sentence that there is practically no such thing as infection of the pelvis without involvement of renal tissue. Furthermore the present author objects to the newly coined word "pyelon," which was introduced by Kapsammer in the article under discussion. There is no such Greek word as "pyelon," but there is a word "pyelos," meaning a bath-tub.

2. *Electric Treatment of the Prostate*.—Müller endorses strongly the method of Porosz, of faradaization of the prostate, which was introduced by the latter in 1897 (see paper by Porosz in *THE AMERICAN JOURNAL OF UROLOGY* for January, 1910). Müller has used the method systematically in both subacute and chronic prostatitis, and their sequels, such as atony of the prostate. He modified the technique of

Porosz slightly, particularly as regards the negative electrode which he places upon the patient's sacrum instead of upon the symphysis. The positive electrode, which is in contact with the prostate, should be made slender enough to allow of free motion over that organ. Müller uses an interrupter run by clock-work which breaks the current sixty times a minute, in such a manner as to have an interruption of a quarter of a second, and a closure of three-quarters of a second. The treatment is applied for one or two minutes over each lobe, and the strength of the current should be such that rythmical contractions of the prostate can be produced. The positive pole should always be applied to the prostate.

3. *Encysted Stone in the Bladder in Women.*—Frank reports an interesting case of encysted stone in the bladder in a woman. Such stones are rare in women, and in the collection of encysted stones in the bladder made by Englisch in 1904, there were 177 cases in men and 5 in women. Usually such stones are formed in pre-existing pockets or cavities. But little is known regarding the formation of stone in connection with operations upon the pelvic organs. One such case was reported by Hahn in 1899. Here a stone formed eight years after an operation for fistula. In the present case the patient was a woman aged fifty, who for years had been suffering pains on the left side of the abdomen, radiating backwards. In 1904 a fibroid tumor of the uterus was discovered and a total hysterectomy was performed. Two vesico-vaginal fistulae formed after the operation, and in 1905 two separate operations were performed to close the fistulae. In 1908 the patient began to have disturbances of urination, and passed several small stones. Her condition became urgent and she was referred for cystoscopy. The entire fundus of the bladder was found filled with a stony mass. The upper surface of the stone was irregular, rough, and very white. Operation was decided upon and suprapubic incision was made under spinal anaesthesia. When the stone was grasped it was felt to resist somewhat, and when it was taken out the stone was seen to have a peculiarly shaped spur at its lower aspect. Further examination bimanually revealed the presence of a sack between the bladder and the vagina in which there were several other stones of large size. The entrance into this cavity was marked by a contracted opening which was dilated with some difficulty, and the stones were removed. Evidently a portion of the bladder had been pulled towards the rectum by the operative procedures, and had become fixed in this position by cicatricial contraction. Possibly there had been previously a diverticulum, the mouth of which had contracted.

4. *The Origin of Phosphaturia in Gonorrhea.*—Lohnstein discusses the question of phosphaturia occurring in connection with gonorrheal

infection. This question was first brought up by Oppenheim and has not yet been settled. Recently Auerbach and Friedenthal went over the entire question upon the basis of modern methods of physiological chemistry. These authors conclude that in many cases the urine has an acid reaction due to the presence of carbonic acid, in addition to salts of weak acids. In such urines an acid reaction was obtained with tincture of litmus, while litmus paper gave an alkaline reaction. This was due to the fact that when the paper dried in the air the carbonic acid escaped and thus the sodium salt of litmus acid was formed, which has a blue color. The authors mentioned insist upon the necessity of rejecting litmus as an indicator of the reaction of the urine, and on the need of using a trustworthy indicator, such as phenolphthalein. It is astonishing to find, in view of these results, that Oppenheim in a recent article still insists that phenolphthalein is not acceptable as an indicator, while litmus is reliable. Lohnstein complains that he has been misquoted in Oppenheim's article. He repeats the conclusions which he made from his investigations of phosphaturia in patients with gonorrhea. Phosphaturia is not caused by the admixture of prostatic secretion. It is true that massage-urine is often less acid than "native urine." Yet the lowering of the acidity is not due to the admixture of prostatic secretion, but is the result of a change in the secretory function of the kidneys. Even without the prostatic secretion, the urine removed from the bladder by catheter, immediately after the bladder had been emptied, is less acid than native urine. In the present article Lohnstein cites the results of a series of observations in which he compares the acidity of renal urine as obtained by catheter, and of bladder urine. The subjects of the experiments were persons with normal kidneys. They were told to empty the bladder, and the time of this act was noted, as well as the time of the previous urination. The bladder was then filled with sterile water, and the ureter on one side was catheterized. This was also timed, and about two c.c. of urine was collected, the time again being noted. The ureter was catheterized usually within five minutes after the emptying of the bladder. It was found that of twenty-two subjects, seventeen showed a less acid renal urine, while five showed a higher acidity in the urine obtained by the ureteral catheter than in that last voided. An interesting point was that in some cases the renal urine showed evidences of phosphaturia, while the bladder urine did not show such evidences. Lohnstein, therefore, accounts for the lowered acidity of massage-urine not by the admixture of prostatic secretion, but in virtue of a lowered acidity of the urine coming from the kidney, as compared with that collecting in the bladder.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

Vol 28, I, No. 5, March 10, 1910.

1. Multilocular Hematocele Involving the Paravaginal Space. Spontaneous External Rupture. By G. Chavannaz and L. Pierre-Nadal, Bordeaux.
2. Indications and Practical Value of Pyelotomy, in the Removal of Stones from the Renal Pelvis. A Study Based upon 103 Cases. By Charles Périneau, Paris. (Continued).

1. *Multilocular Hematocele*.—Chavannaz and Pierre-Nadal point out that the paravaginal space is rarely involved in cases of hematocele. Spontaneous rupture is also rare in these cases, and for these reasons they report a case in which these features were present. Incidentally they contribute a valuable study upon the subject. The patient was a man, seventy years of age, who had fallen astride from a scaffold two years previously. A large hematocele followed, which increased in size, until it reached down to his knee. The tumor ruptured spontaneously, giving issue to a large quantity of fluid of a brownish color. Castration was performed and the patient made a good recovery. A thorough examination showed that the tumor consisted of two large cavities communicating through a large opening. One of these cavities constituted the space of the tunica vaginalis, while the other represented a portion of the paravaginal space. Within the thickness of the wall of the tunica were found two other cavities, one of which was completely closed, while the other was arranged like a dissecting aneurism and opened into the primary pocket. A small closed cavity was also found in the wall of the secondary pocket. The primary pocket in this case was the tunica vaginalis, which contained the thickest tissue and the largest amount of calcarious deposits. The secondary pocket was unquestionably a portion of the paravaginal space.

ANNALES DES MALADIES GÉNITO-URINAIRES

Vol. 28, I, No. 6. March 20, 1910.

1. False Passages. By F. Legueu, Paris.
2. Indications and Practical Value of Pyelotomy. By Charles Périneau, Paris. (Concluded).
3. Suprapubic Cystotomy with an Empty Bladder. By F. Lastaria, Naples.
4. True and False Gonococci. By Lucien Wormser.

1. *False Passages*.—Legueu discusses the causation, diagnosis and treatment of false passages. For the causation of these accidents, three elements are necessary. First, a urethra, second, an instrument, and third, an operator. Normally some conditions of the urethra favor false passages. Such are, abnormally developed follicles, prostatic valves, and especially the cul de sac of the bulb. The latter is to be avoided in old men. Besides this, there are pathological conditions which favor false passages. For example, spasm of the urethra, which closes the membranous portion and favors the passage of the sound into the cul de sac of the bulb. Other causes are the presence of a stricture or of prostatic hypertrophy. As regards the instrument, it must be remembered that some types of instruments favor false passages, and that a small fine pointed instrument favors penetration through the mucosa.

As regards the operator, there is no excuse for the use of brute force as was the practice in olden days. It must be remembered that all false passages occur in the lower wall of the urethra and that the way to avoid them is to follow the upper wall closely with the instrument. When a false passage occurs, it is important to recognize where it has taken place. Hemorrhage and infection are dangers to be feared. It is comparatively easy to know the location of a false passage which one has made himself. It is more difficult to recognize false passages made by others. Often the patient comes with a retention or with hemorrhage, or both, and it is imperative that something be done at once to relieve him. Much aid is derived from a knowledge of the points of election of false passages which have been already mentioned. If it is impossible to enter the bladder with the aid of a beaked sound or catheter (No. 19 or 20 F with a well-formed angle, a blunt end, and a short beak), it may be necessary to perform suprapubic puncture or incision, or a perineal incision of the emergency type. In cases complicated by fever and uremia, cystostomy should be performed or, if necessary, a prostatectomy in two stages.

2. *Pyelotomy in Stone*.—Périneau studied 103 cases of pyelotomy for the removal of stones in the renal pelvis, and concludes that this is the ideal operation for the radical cure of calculi in the pelvis and calices. The operation is not more difficult than nephrotomy, and has the advantage of rendering exploration of calices, pelvis and ureter easy. Pyelotomy has the advantage over nephrotomy of not involving a lesion of the parenchyma, which may be the seat of a nephritis in advanced cases. Furthermore, pyelotomy avoids all danger of primary

and secondary hemorrhage. In no case did a fistula persist, provided the patency of the ureter was made sure of during the operation.

The contraindications of pyelotomy are found in cases with complicating infections. Thus if a marked perinephritis is found rendering exposure of the pelvis impossible or difficult. Furthermore, if pyonephrosis exists, the need of draining the kidney is above every other need. If slight pyelitis or pyelonephritis be present, pyelotomy is, on the contrary, not contraindicated. In such cases the cavity must be all the more carefully sutured with double or triple tiers of sutures.

Other contraindications of pyelotomy lie in the character or location of the stones. When the stone lies in the parenchyma, the latter must be, of course, split open; when the size and shape of the stone are such as to render it necessary to mutilate the pelvis, especially the ureter, in its extraction; when the stone is irregular, branched, the best procedure is nephrotomy. When there are small and multiple calculi they are theoretically best removed by pyelotomy, yet practically each case must be decided for itself, and it may be necessary to resort to nephrotomy in such cases.

A study of the cases collected by the author indicates that exploratory nephrotomy does not give any better results in locating calculi than does pyelotomy, with careful palpation. In the author's opinion, exploratory nephrotomy, with its injury to the kidney, is destined to be used much less often than was formerly done.

In cases of anuria two types may be distinguished: Patients with uremic symptoms who must be operated upon at once, as soon as diagnosis is established, and in whom rapid nephrostomy is the only procedure advisable, and cases still without uremia in whom pyelotomy may be employed, unless the flow of urine can be re-established by catheterizing the ureter.

Pyelotomy is destined to play a more and more prominent rôle in the surgery of renal and pelvic calculi, especially with the increasing accuracy of radiographic diagnosis.

3. *Suprapubic Cystotomy with an Empty Bladder.*—Lastaria, of Naples, showed in 1902 that the bladder may be opened while empty, and reported ten cases in which this had been done. Since then he has operated upon 18 further cases. In the present article the author endeavors to defend his method of procedure. The latter, he says, depends upon the fact that the parieto-vesical fold of peritoneum can be dissected or peeled back even when the bladder is empty, especially when the patient is in the Trendelenburg position. The following is the technique used by Lastaria:

The bladder is washed through a soft rubber catheter. The patient is placed in the moderate Trendelenburg position. The operator stands on the left side. An incision is made in the linea alba from the pubis upward for from 6 to 8 centimeters. Cutting through the muscles (pyramidalis and recti), one strikes the fascia of Retzius, rare in children, rich in fat in adults. A grayish lining is found to pass under the muscles, towards the posterior aspect of the pubis. This is the parietal peritoneum covered with umbilico-vesical aponeurosis. This layer of peritoneum is split off from the pubis by means of the finger, and is followed down upon the anterior and upper surface of the bladder. The latter is recognized by its muscular wall and by two veins which run up behind the pubis. If there is any doubt as to the identity of the reflected membrane, a pressure upon the upper abdomen distends the reflected sac of peritoneum, while a current of air blows up the bladder through the catheter. A large retractor is now placed at the upper end of the wound to hold back the peritoneum. The bladder is seized with two forceps, near the median line, and an incision is made between the forceps, avoiding the veins mentioned above.

4. *Gonococci or False Gonococci*.—Wormser emphasizes the importance of clinical and bacteriological examinations in the recognition of latent gonococcus infections, and dwells especially upon the deceptive finding of micrococcus fallax (Rousseau) which resembles the gonococcus, but is distinguished culturally. Irritating injections of silver nitrate should be used to cause a recurrence of urethral discharge. *Micrococcus fallax* does not react regularly with Gram's method, but is usually negative. An interesting point is that this coccus is easily destroyed by weak alkaline solutions (2 to 8 grams. of sodium carbonate to one litre of antiseptic irrigating solution). Potassium permanganate has no effect on this germ, which is probably one of the bacteria that continue a gonococcus infection.

ANNALES DES MALADIES VÉNÉRIENNES

Vol. V., No. 3, March, 1910.

1. New Observations on the Use of Sodium Acetyl-Arsinilate in Syphilis. By G. B. Della Favera, Parma.
2. Fever Following Mercurial Injections. By Bertin and Vanhaecke, Lille.
3. Unrecognized Chancres of the Tonsil. By Georges Pernet, London.

1. *Arsacetin in Syphilis*.—Della Favera presents the results of his experience with sodium acetyl-arsanilate (arsacetin) in syphilis. His

general thesis is that the drug mentioned has an undoubted antisyphilitic action. Employed during the second period of incubation, arsacetin produces a regression of the initial lesion and of the accompanying adenitis, but is powerless in preventing the appearance of the secondaries. Arsacetin often fails in the early secondaries, and is especially valuable in lesions of the late secondary and tertiary types—lesions with a tendency to ulceration and with but few spirochetæ. Arsacetin therefore is less powerful than mercury, yet it has a marked antisyphilitic power.

It is well enough to know the symptomatic value of arsacetin. A graver question perhaps is the ultimate effect of this drug upon the evolution of syphilis and the recurrence of luetic lesions. The author hesitates to express a positive opinion, inasmuch as his cases have been followed but for a year or two, but his impression is that arsacetin has less lasting effects than mercury.

The toxic effects of arsacetin are next considered by the author. He finds that the drug in question is far more stable than atoxyl, and is better borne than the latter. In properly selected cases arsacetin may be given in large doses without toxic effects. In susceptible persons, however, it is productive of serious toxic symptoms, among which ocular disturbances are very prominent. In one case observed by the author, a man of 44 who had suffered from a toxic amblyopia due to alcoholism some months previously, was subjected to arsacetin treatment, 2.60 grams being injected in 15 days. Complete blindness followed in a short time. In a second case a man of 56, a tramp, chronic alcoholic, received 4.20 grams arsacetin within one month. Two or three weeks afterwards his vision became less distinct, and there was paresis of the bladder. Hearing was also markedly affected. There were muscular tremors, vertigo and an unsteady gait. In the first case the amaurosis was due to optic nerve atrophy, in the second case there was a complex syndrome which cannot be exactly defined in the present state of our knowledge.

Arsacetin, which was lauded by Ehrlich, Neisser and Salmon as being non-toxic in comparison to atoxyl, therefore, does not justify these praises. A number of cases of blindness due to arsacetin were reported by other authors. Locally, the remedy is very efficient in the treatment of initial lesions, but presents no advantages over mercurial preparations, in this respect.

2. *Mercurial Fever*.—Bertin and Vanhaecke present a study of cases in which the use of mercurial injections was followed by a variety of febrile attacks, sometimes in the form of a fever resembling that of influenza. For the latter the term "grippe mercurielle" is used.

From this study the authors conclude that the probable cause of this fever is the action of mercury upon the leucocytes. Insoluble salts, especially, are apt to give rise to febrile symptoms, because they are more irritating to the leucocytes. Soluble salts give rise to fever (and to leucocytosis) only in massive doses, usually. A practical point is that the fever appears more commonly after the first doses of a new series of injections, rather than at the end of such a series, showing that the fever is not due to a cumulative or toxic effect of the mercury. The appearance of fever is not a contraindication against continuing a course of injections, but smaller doses should be used, or the soluble salts should be given, instead of the insoluble, in such cases.

RIVISTA UROLOGICA

Vol. I, No. 1, March 15, 1910.

1. The Systematic Use of Clamps à Demeuke, in Secondary Nephrectomy. By F. Cathelin, Paris.
2. Meatoscopy by the Direct Vision Method. Its Value in the Diagnosis of Lesions of the Ureters and Kidneys. By A. Boari, Ancona.
3. The Surgical Exploration of the Renal Pelvis. By Pierre Delbet and Pierre Mocquot, Paris. (To be continued).
4. Some Considerations on Tumors of the Bladder. A Case of Recurring Papilloma of the Abdominal Wall Without Recurrence in the Bladder. By A. Malherbe, Nantes.
5. Operative Treatment in Cancer of the Prostate. By J. Verhoogen, Brussels.

1. *Pedicle Clamps in Secondary Nephrectomy.*—Cathelin favors the use of pedicle clamps instead of ligatures in secondary nephrectomies. Prolonged forcipressure is of great advantage in these cases, he thinks. Clamps are more easily applied than ligatures, especially when the kidney is deeply situated, adherent, and the pedicle thickened. The method of using clamps is safe, and rapid, provided good judgment be used in applying it. Usually the clamps are removed after 72 hours. A blackish secretion issues from the wound, due to the solvent action of the body fluids upon the nickel of the clamp. Before the clamp is removed the wound should be well irrigated. The wound, kept open for the first few days by the clamp, heals well and promptly afterwards. In removing the clamps, they should be opened very gently "tooth by tooth" as the author says. If any hemorrhage ensues, they should then

be closed again. The patient should remain in a position like that of Sims during the days when the damp is *in situ*.

2. *Meatoscopy of the Ureters*.—Boari urges the value of the method of inspecting the ureteral orifices through a direct vision cystoscope. In his opinion meatoscopy is the best means of diagnosis of renal and ureteral affections which we possess to-day, and the further study of meatoscopy will eventually bring about much greater precision in urinary diagnosis.

4. *Epithelioma of the Abdominal Parietes, Occurring After the Removal of a Vesical Papilloma*.—Malherbe reports a case in which a papilloma of the bladder was successfully removed, and did not recur. Eight months after operation the patient felt a small growth at the lower part of the abdomen, without feeling any disturbances of urination. Within four years the tumor grew to the size of an adult's head, the patient's abdomen resembling that of a woman with a fibroid tumor. Operation revealed a large mass adherent to the abdominal parietes and the os pubis, and another mass growing in the peritoneal cavity. Neither of these was connected with the bladder, and that organ was free from recurrence of the original growth. The tumor was removed with great difficulty, the operation lasting two hours. The patient died a month after operation, of exhaustion and sepsis. The masses were found to be epitheliomas. The author asks the question whether the accidental transplantation of a part of the vesical tumor could not have taken place during the first operation. Precautions against such transplantation should be taken in suprapubic operations for the removal of apparently benign vesical papillomas, which may always contain cancerous elements.

5. *Prostatectomy for Cancer*.—Verhoogen reports the results in eight cases of cancer of the prostate operated upon by him in 1907 and 1908. The cases included examples of extensive cancerous involvement of the prostate. In five cases the vesicles and base of the bladder were involved. In five cases the tumor was completely removed, in three the palliative operation was performed,—suprapubic cystostomy, owing to the too great extent of the tumor, or the low vitality of the patient. Of these three patients one lived 16, one 19 and one 21 months after the operation, the last being still alive. Cystostomy gave great relief and comfort to these patients. Of the five prostatectomies for cancer, one was suprapubic, three were perineal, and one perineal with coccygeal resection. The suprapubic operation is not to be recommended. The patient operated upon by this method suffered a recurrence within three months. Of the three perineal prostatectomies one patient died, his case being a hopeless one from the start. One patient recovered, but devel-

oped a local recurrence sixteen months later. A third patient regained his health, and is living two years after the operation. Coccygeal resection was used in a case in which the base of the bladder was extensively involved. The patient is in good health, twenty-one months after operation.

ABSTRACTS FROM OTHER JOURNALS

FUNCTIONAL DIAGNOSIS OF RENAL DISEASE, ESPECIALLY BY EXPERIMENTAL POLYURIA. E. L. Keyes Jr., (*Annals of Surgery*, March 1910) reports his experience in the functional diagnosis of renal disease, with special reference to some studies in Albarran's method of experimental polyuria. In Keyes' experience experimental polyuria furnishes better criteria of the functional condition of the kidney than do the *artificial elimination tests*. He has found phloridzin totally misleading if taken as an absolute criterion. Thus, he has performed successful nephrectomy for tuberculosis of the kidney upon a patient in whose combined urines phloridzin did not appear for two hours. He has noted total absence of phloridzin for an hour and a half in a patient both of whose kidneys seemed entirely normal. On the other hand, in a case in which one kidney had been almost completely removed, the remaining fragment being greatly infected, the right kidney gave glycosuria in fourteen minutes, and the left in seventeen. In other words, phloridzin simply shows that the kidney which first excretes sugar is in better condition than the one that excretes it later. How much better, must be determined by other tests.

Experimental polyuria, introduced by Albarran, consists in taking a patient who has not eaten anything for at least four hours or drunk anything for at least three hours, catheterizing the ureter and collecting the urine as follows: That passed during the first ten minutes is collected for microscopic analysis. The urine is collected, measured and examined at the end of each half hour thereafter. At the end of the first half hour two or three glasses of water are given and separate specimens of the urine are thereafter collected for three consecutive half hours. There are then four specimens from each kidney, eight in all, which are compared as to the quantity and quality, passed. Normally, the quantity of urine increases markedly during the second half hour (immediately after the water has been drunk), while the quality of the urine deteriorates in proportion to the in-

crease in quantity. The polyuria continues during the two succeeding half hours, or begins to fall off during the fourth. If both kidneys are normal, the quantity and percentage of urea will run parallel. On the other hand, if one kidney is diseased, the decrease in the percentage of the solids in proportion to the quantity excreted is much less marked. In applying this method Keyes encountered considerable difficulty, chiefly the practical impossibility of estimating the amount of water necessary to insure polyuria, even in normal persons. He usually gives at least four glasses of water and a drink of whiskey. He finds, however, that even when the water-drinking test may not succeed in exciting polyuria, it has a distinct value. Even without the polyuria the normal kidney showed a variable output from one half hour to another, while the diseased kidney showed slighter variations. Polyuria, if induced, simply enhances the difference. To recognize whether the experiment is working and whether polyuria is actually at work, we must watch the percentage of urea during the third half hour. When this percentage falls at that time, the experiment is working: if not, the polyuria is relatively ineffectual and the results must be studied as a series of ureter-catheter observations.

The conclusions with reference to *the normal kidney* were formulated as follows by Keyes: Experimental polyuria usually increases the quantity and dilutes the urea in the urine of the normal kidney; the work actually done usually increases. In some instances the quantity does not increase, while the urea percentage does. In certain general pathologic conditions the polyuria test is upset, as for example in the presence of sepsis, fever, etc. Variations in quantity and quality in the absence of polyuria are suggestive of good functional activity.

On the other hand *the diseased kidney* presents three points of difference: 1. The quantity and quality of urine excreted by the diseased kidney are markedly inferior to those of the urine excreted by the healthy kidney. 2. The curve of the diseased kidney is less abrupt than that of the normal kidney; it may even fall instead of rising, and the impairment in kidney function is generally proportionate to the flatness of the curve. 3. The disparity between the curve of the healthy and the diseased kidney is proportionate to the amount of artificial stimulation. The most striking polyuria was shown in a case in which the patient drank seven glasses of water.

The above points apply *when one kidney is markedly diseased*. When there is but *slight impairment on one side*, the test is much less trustworthy, and it is not always clear which side is the more diseased. Possibly the use of more water, or of alcohol, will give better results

in the future. Artificial excretion tests are of value for corroborative purposes in doubtful cases.

Keyes leaves a ureteral catheter with several eyes, number 8, in the bladder throughout the test. At the end of each period one c. c. of boric acid solution is injected through this to insure its patency and to prove whether the urine has flowed past the two ureter catheters. The latter must be flute-tipped, size 6 or 7, introduced at least 15 c.m. up the ureters. If the flow stops, one c.c. of boric acid solution must be injected into the catheter (and this quantity allowed for in computations) to dislodge any material blocking the catheter.

RENAL ACTIVITY AND ITS TESTS: Dr. S. W. Schapira, New York (*Journal A. M. A.*, January 15), criticises the older and still ordinarily used tests for impairment of kidney function—the search for albumin and casts, the determination of urea, of the amount of chlorids and of uric acid and phosphates—as not giving reliable information. The amount of urine is of some value in determining chronic kidney disease, and cryoscopy, while of some utility, is influenced by the amount of water ingested and is impracticable under too many circumstances for general use. The tests that he here discusses and has experimented with himself for a number of years, are based on the principle of introducing foreign substances into the human body and noting the time of their elimination by the kidneys. The results of his studies lead him to the following conclusions: “1. They confirm the views of those who believe that little value can be placed in the presence of casts and albumin alone, as evidence of kidney disease, for my statistics show that one in every fifteen persons walking the streets has albumin or albumin and casts in the urine. 2. The most accurate test for permeability of the kidneys is phloridzin in connection with ureter catheterization, although it is sometimes a very tedious process. Next of importance is the indigo carmin, which is a very quick test, and last, methylene blue. 3. The relationship of transient glycosuria to impaired kidney function when found in one kidney is deserving of study and investigation. 4. My investigations tend to show that the diagnosis of kidney disease by clinical tests and clinical symptoms in most instances is not borne out by the examination with phloridzin, methylene blue and indigo carmin.”

GNOCOCCEMIA: Irons reports 6 cases in which the gonococcus was isolated from the blood during life. (*Archives Internal Medicine, J. A. M. A.*).

Case 1.—The clinical picture is that of an exceedingly chronic type of gonococcus infection, from the initial urethritis ten years previously, with relapses or, possibly reinfections later, hydrocele and arthritis of recurring type, attacks of irregular fever with occasional

chills, and finally a more severe attack of continued fever, arthritis, leucocytosis, and demonstrated gonococcemia. During the early days of observation the case presented several points of difficulty in diagnosis in spite of the evident rôle which the gonococcus had played in the previous history. The continued fever, with relatively slight remissions, together with the abdominal maculopapules, some of which at least could not be distinguished from rose-spots, suggested the possibility of typhoid complicating some other infection. Signs of dry pleurisy were noted at the onset. Acute articular rheumatism, tuberculosis, and, later, ulcerative endocarditis of possibly pneumococcus or streptococcus origin were considered. During the period of observation in the hospital the patient presented no definite evidence of endocardial lesion. The subsequent history of cardiac difficulty and irregular fever almost two years later suggest strongly the presence of an ulcerative gonococcus endocarditis which may have had its origin at the time of hospital observation, or possibly months before. The value of vaccines in the case is problematical. The gradual fall of temperature and improvement in the joints which followed the use of vaccines without other medication may have occurred coincidently, and not as a result of the therapy.

Case 2.—The history of illness extending over a period of eight months at least, characterized by gradually increasing palpitation, dyspnea, irregular fever and chills, the physical signs of a progressive lesion of the aortic valve, enlarged spleen, and the absence of other foci of suppuration suffice for the diagnosis of ulcerative endocarditis involving the aortic valve. The history of a preceding gonorrhea and the absence of other illness, such as tonsillitis, or pneumonia, are suggestive of the nature of the infection. The isolation of the gonococcus in pure culture from the circulating blood demonstrates the true character of the infection. The use of autogenous vaccines in this case was not followed by any observable benefit.

Case 3.—One week after the onset of gonorrhea a young man suffers a severe chill, followed by pain in several joints. The joint symptoms subside, but the chilly sensations and fever recur irregularly, with gradually increasing weakness, dyspnea, and loss of weight. Glycosuria without polyphagia or marked polyuria is found, and the patient is brought to the consultant. The history, weakness, fever, chills and anemia suggest a septic process, and the gonococcus is isolated from the blood. The gradually changing endocardial murmur, together with other signs of cardiac involvement, leave but little doubt that acute ulcerative endocarditis is also present.

Case 4.—A woman, aged 37, an alcoholic, who for some time has suffered from a genital gonococcus infection, is taken suddenly ill with multiple arthritis, fever and symptoms of severe infection, clinically not unlike acute articular rheumatism. Aside from a faint systolic

murmur (possibly hemic) there is no definite evidence of endocarditis or pericarditis. The fever from the fifth day ranges between 101 F. and 103 F., later gradually rising to 106 F. and death.

Case 5.—A man, aged 39, alcoholic, the subject of chronic gonococcus urethritis, suddenly suffers from multiple arthritis, fever, and symptoms of severe infection. Careful and repeated examination of the heart show no definite evidence of endocarditis. Over the abdomen and lower chest are a number of small slightly raised reddish maculopapules which partially fade on pressure. There is a leucocytosis of 21,000. The gonococcus is isolated from the blood in numbers of 2 and 3 colonies per cubic centimeter of blood. The fever curve is sustained, with only slight remissions. The pulse in the third week of the illness is rapid. Aside from the laboratory findings and the arthritis of the knee, the clinical course, appearance of the patient, rash and temperature curve are somewhat suggestive of typhoid.

Case 6.—During an exacerbation in the course of gonococcus arthritis in a young man the gonococcus is isolated from the blood and from the joint fluid in pure culture. There is no clinical evidence during the entire course of the illness of any endocardial lesion.

PUS TUBES IN THE MALE.—In an interesting paper on the surgical and vaccine treatment of pus tubes in the male, Dr. War. T. Belfield strongly advocates his operation of vasostomy (*J. A. M. A.*, Dec. 25, 1909). By this procedure, which involves an incision into the vas, and when necessary, into the epididymis, the vas, ampulla, and vesicle may be freely drained and medicated.

In the technic of vasostomy three features are important: (1) fixation of the vas, which otherwise may drop into the scrotum and be recaptured with difficulty; (2) raising the vas through the skin-cut for accurate manipulation; (3) exploration of vas for obstruction by sounding with a silkworm thread. When resection of the vas is performed, a silkworm of catgut thread is passed into the lumen and out through the wall of each cut end and the ends tied above the skin, the thread serving as an axis splint which secures exact apposition of the cut ends of the vas. Incidentally the author has observed that after resection of a half inch of the vas the cut ends have reunited spontaneously, with a patulous lumen.

The author then goes on to report that he has met with a steady improvement in the results obtained in treating the various infections of the seminal duct with autogenous vaccines. He summarizes his paper as follows:

1. Pus infection of the seminal tract plus occlusion of the ejaculatory duct soon converts vesicle, vas and finally epididymis into a closed abscess.

2. Vasostomy is the simplest and least objectionable means of evacuating pus, relieving tension and medicating vas and vesicle.

3. Among the effects of these infections on the urinary organs are bladder irritation and obstruction of the ureter with consequent kidney lesions.

4. Impotence, sterility and sexual neuroses in the male are frequent results of pus infections of the seminal tract and amenable to appropriate treatment thereof.

5. Vaccine therapy, accurately applied, is the most valuable internal measure against the infections which produce pus tubes in the male.

ENCYSTED VESICAL CALCULUS WITH PEDICLE.—Dr. C. A. Bondurant reports a case of encysted calculus with pedicle in a woman (*J. A. M. A.*, Jan 8, 1910). The author opened the bladder suprapubically, but finding that the stone was connected with the posterior vesical wall, and shut off from the bladder cavity, he immediately closed this incision, except for drainage, and then went in above through the peritoneum. Here he found the calculus attached to the posterior wall by means of a very short pedicle which was really an extension of the peritoneal coating of the bladder. Removal was easy. The specimen weighed almost 400 grains and measured 2x1 1-3 inches.

COLLARGOL IN GONORRHEA: Dr. Uteau (*Annals des Maladies Vénériennes*, Sept., 1909) uses Collargol irrigations in acute cases of gonorrheal urethritis. He employs 1% solutions, the patient irrigating the anterior urethra each morning, while in the afternoon a urethro-vesical lavage is practiced by the physician. In chronic cases of gonorrhea the author uses large quantities of collargol for lavage in conjunction with other methods of treatment, such as massage and dilation. The results have been particularly satisfactory in the acute cases, the treatments lasting from 4 to 25 days. Sometimes alternate irrigations with potassium permanganate were used. Collargol irrigations were always painless and never gave rise to complications.

INFECTIONS OF THE URINARY TRACT DUE TO BACILLUS COLI AND ALLIED ORGANISMS. L. S. Dudgeon, and A. Ross, of London, (*Annals of Surgery*, March, 1910), report their experience during the past two years with the serum and vaccine treatment of certain infections of the urinary tract caused by the bacillus coli. In all cases a bacteriological examination is necessary to make the diagnosis. The cases were either acute with fever and chills, frequency of urination and pain; or chronic, with pyuria and bacilluria, etc. A number of cases occurred in pregnancy and after childbirth. In acute cases excellent results were obtained by giving the *anti-bacillus coli serum* in doses

of twenty-five c.c. spread over seventy-two hours, the patient remaining in bed for about a week. Great care should be taken to ascertain that the patient has not received serum treatment of any sort at a more or less recent date. Occasionally severe constitutional symptoms followed serum treatment, and in acute cases during pregnancy, and in old people it is best to use vaccine. The best results were obtained when patients were treated during an acute attack, or an acute phase of a chronic attack.

In chronic and subacute cases *vaccine* should be preferred to drug treatment, etc. In the later stages of acute cases distinct benefit was noted when vaccine was given in addition to the serum. Autogenous vaccine should always be used. It was uncommon to get any constitutional symptoms after the use of bacillus coli vaccine. The latter should be given by intramuscular injection, the sites of inoculation being varied in rotation. As regards results, recovery was complete in most of the acute cases, but a sterile urine was exceptional in the chronic cases, although considerable improvement was effected in the cases with symptoms. A small dose of between one hundred and two hundred million bacilli administered every five days seemed to give the best results. Relapses are apt to occur, even after successful treatment of these cases.

UNGUENTUM CREDE IN ULCERATED SYPHILIDES: Brocq (Physician of the Hôpital St. Louis in Paris, *Journal des Praticiens*, 1909, No. 24) reports several cases of malignant, pustular and ulcerated syphilides, resisting all treatment and showing a tendency to become phagedenic when the patients were put on mercury. Collargol ointment (Unguentum Crédé) not only allayed the pain, but proved to be non-irritant and to hasten cicatrization. Under its prolonged, conscientious use excellent results were obtained.

SOCIETY PROCEEDINGS

AMERICAN UROLOGICAL ASSOCIATION, NEW YORK SOCIETY

Stated Meeting, at the N. Y. Academy of Medicine, March 23, 1910.
The President, Dr. A. ERNEST GALLANT, in the Chair.

A. REPORTS OF CASES.

1. *A Case of Recurrent Papilloma of the Bladder Treated by the High Frequency Current.*—DR. E. L. KEYES, JR. reported the case of a man, forty-four years of age, who was referred to him last December. In May, 1908, he had a severe cold, terminating in a spontaneous and painless hematuria, which lasted a few days. Between May, 1908, and July, 1909, this had returned seven or eight times. A large villous tumor growing from the right side of the bladder was seen through the cystoscope; this growth was removed by the suprapubic route. The pathologist reported it a pure papilloma, but stated that an inch of apparently normal mucosa surrounding the base showed papillomatous changes to its edge. Convalescence was uneventful. Two months later cystoscopy showed the scar covered with a whitish looking material suggesting adherent granular phosphates, and around it great fingers of edematous mucosa. The tip of a catheter introduced showed that it was formed of whitish material of very minute papilli. Using the D'Arsonval current he burned the central mass thirty times, as well as the outlying spots twenty times. On a later occasion he cystoscoped again and found that the edematous condition of the mucosa had spread alarmingly toward the ureter. This he burned twenty times. A week later the edema was worse than before and he then tried the Oudin current, but only succeeded in blowing out the lamp of his cystoscope. Ten days later the whole picture was changed, the edema was greatly reduced and only a few papules remained which were burned. At the last cystoscopy, March 12, 1910, there was left but a minute ulceration in the scar from which he thought a small papillary filament projected. He did not burn this as he wished to allow it to grow larger before touching it, in order to be sure of what it was. The remaining whitish spots were apparently puckerings in the scar and not neoplastic papillae. The reader of the report thought that the high frequency current, applied in this manner intravesically may prove of value in the treatment of papillomas, especially in cases with recurrent growth after operation. The appliance used consisted simply of a set of insulated wire electrodes, of the size of

ordinary ureteral catheters, which were introduced through the Brown-Buerger cystoscope, and connected with the D'Arsonval current. Further studies were needed to prove the efficiency of this method. After Dr. Keyes had used the electrode, the makers told him that the appliance had been devised by Dr. Edwin Beer, of New York, to whom the speaker gave full credit for this ingenious application of the high frequency current.

2. *A Vesical Tumor in Bilharzia Infection.*—DR. BURTON HARRIS, of Brooklyn, presented this report by invitation, and demonstrated the live parasite in a projection microscope. The ova of the parasite taken from the patient's urine were shown in the process of hatching embryos, and the free embryos were shown moving about in the fluid.

3. *A Case of Rupture of the Urethra, with Sloughing and a Persistent Fistula for which Three Unsuccessful Attempts at Repair have been made.*—DR. GEORGE F. CORRIGAN, and DR. C. R. O'CROWLEY, of Newark, presented a man, forty years old, a Russian, who fell sixteen months ago and landed on his perineum, rupturing the urethra behind the compressor urethrae muscle. Sloughing had resulted. Three attempts at repair had been made, but all were unsuccessful. This patient came to the Newark City dispensary two months ago, presenting practically the condition of to-day. He was sent to St. James' Hospital. Upon close examination Dr. Corrigan thought that he was unable to handle the case and, therefore, brought the patient before the Urological Society for advice. It naturally occurred to him that in the effort to get repair, there should first be provided some drainage either through the penis or suprapubically, preferably the latter.

DR. O'CROWLEY of Newark said Dr. Corrigan and he had decided to bring the patient before the Society because of the three operative failures. This case was no doubt a purely traumatic one and he hoped that some advice would be given so that they could obtain a good result after the three failures.

DR. EDWARD L. KEYES, JR., asked if three operations had been performed on this patient.

DR. CORRIGAN replied that three operations had been performed, the last one two months ago. Since the first operation the patient had never urinated through his urethra. The question now was, what was the best procedure to give this patient the best results.

DR. KEYES said that it was absolutely necessary to free the rectum of any adhesions, going back to where the sinus now present opened into the urethra, and sewing it up. It was quite conceivable that the opera-

tion would fail. In order that healing might not fail, the urine should be side-tracked. He thought it best first to enter the perineum in order to learn just what was present, and then to decide what further steps were needed.

DR. CORRIGAN asked what suture material Dr. Keyes would advise for this work, after the perineal incision had been made. He thought it best to dissect out the scar tissue.

DR. KEYES said that chromic catgut would fill the indications, although silk-worm gut might be used with the ends left long. Suprapubic drainage should be obtained in order to side-track the urine. The so-called thirty-day gut should be used for suturing.

DR. CORRIGAN asked if, when catheter was passed, it should be used as a guide.

DR. KEYES replied in the affirmative; this gave some index as to how large the urethra was.

DR. CORRIGAN asked if the edges should be closely approximated or not.

DR. KEYES replied that they should be brought together as well as possible. It should be remembered, however, that the muscles were out of business because of the scarring and the injury resulting from the three operations. Something must be attempted, and possibly some flap operation would give the best results.

THE PRESIDENT suggested that Dr. Corrigan look up an article by Dr. Hugh Cabot, of Boston; in this article he described a typical case of this nature, and in which the treatment resorted to was successful. However, Dr. Gallant had only read the article cursorily and was not able to give much information as to the procedure adopted.

DR. J. BENTLEY SQUIER thought that the primary traumatism did not cause the rupture, but unquestionably the operations done since had. No doubt the canal would be found full of scar tissue. He said he had seen a similar case that had followed prostatectomy; the urine was passed through a fistula. A perineal operation was done and he found a sinus opening into the bladder. In the case presented, however, one could not tell the exact conditions until he got in there. The only practical thing to do, in his opinion, was to make a Y-shaped incision and find out the condition to be treated.

DR. B. S. BARRINGER suggested that the use of an injection of methylene blue might aid in making a diagnosis, with the aid of the cystoscope, as to the location of the fistula in relation to the urethra.

4. *Result of Excision of a Horn on the Penis.*—DR. C. R. O'CROWLEY, of Newark, N. J., said that at the last meeting of the Urological Association he had presented a patient with a horn on his penis and had asked for suggestions regarding its removal. The growth had been removed, however, and its base cauterized with a resulting cure. The pathologist had found nothing about it suggestive of malignancy. The patient had had this growth for about nine years. It shelled out easily and healed nicely after the cauterization of its base.

B. PAPERS OF THE EVENING:

1. THE TREATMENT OF MALIGNANT DISEASE OF THE PROSTATE.

Dr. Joseph B. Bissell read this paper. (See this issue, page 232.)

2. THE TREATMENT OF MALIGNANT DISEASE OF THE BLADDER. DR.

R. H. Greene read this paper. (See this issue, page 244.)

DISCUSSION OF REPORTS OF CASES AND PAPERS

DR. FRANK M. JOHNSON, of Boston, said that he felt very much indebted to Dr. Keyes for the presentation of his paper, and he wished that the high frequency currents could be made use of in some of the malignant growths. This was a most interesting subject but one with which he was almost entirely unfamiliar. The papers that followed the one of Dr. Keyes were most interesting and instructive, and he did not know that he could add anything although perhaps he might make a few suggestions.

There were times when they knew perfectly well that the patient must be lost, yet a certain amount of alleviation could be given. However, up to date he said he had tried the different injections that he had learned of with the hope of alleviating cancer, but he had not had good results, at least no results worth mentioning. In each and every case lost, he had advocated the use of morphine in increasing doses until sleep came.

There was one factor Dr. Johnson was very glad to hear mentioned. There were a great many troubles with the bladder, especially of malignant nature, when one could do good work by not attempting to do too much. Remarkable results often could be obtained if too much was not attempted. He had charge of a patient for three years, who was leading a very comfortable existence with nothing particularly in the way of treatment except lavage; this patient had cancer of the stomach. And so it is with the prostate. In cases of hypertrophied prostate, relief could be obtained without operation often by the use of massage, elec-

tricity, etc. The hypertrophy referred to was the kind that came before the fifties, and it was very surprising that the treatment of the prostate by such simple measures was so often left out and overlooked.

DR. PAUL M. PILCHER, of Brooklyn, called attention to two phases of malignant disease of the prostate which had not been touched upon by the readers of the papers; one was the condition of carcinoma of the prostate without symptoms of obstruction to the flow of urine, cases in which operation would be followed by such unpleasant results as to make life not worth living. Two such cases had come under his care in both of which he had used radium to see what effect would be produced upon the malignant process in the prostate. One of these men came under observation six years ago; he had carcinoma of the rectum, as well as of the prostate, and had consulted such men as Dr. Fowler, Dr. Pilcher, Dr. Fuhs, and others. Microscopical examination of a section from the rectal growth showed it to be epitheliomatous. Alternate treatments with Radium in the rectum and X-ray radiations caused the growth to become smaller and finally disappear entirely; the prostate became smaller and softer, and finally all of the diseased condition disappeared, and the man to-day was practically well. One could hardly believe that this was a malignant disease, and the patient was told that there was a possible mistake made in the diagnosis. After three months, however, there was a recurrence in the rectum; radium was again used, and again the growth disappeared. For the next three or four years there was a recurrence and then a disappearance under the use of radium. At one time there appeared a growth in the groin which was removed by operation and proven to be malignant. This patient was now well after six years.

The second case was a man who had a stony enlargement of the prostate. His general symptoms were caused by a damming back of the lymph, causing a great enlargement and edema of the left leg. Any operation was out of the question. He had been treated by means of radium with some results, but the carcinoma was still present. The swelling of the leg disappeared. Possibly radium might be used in the rectum; it certainly should be tried if only as a palliative treatment in such cases.

A second suggestion in considering the treatment of malignant disease of the prostate was the necessity for relieving painful obstruction to the outflow of urine. Personally he believed that there was more good obtained from the removal of hypertrophied lobe of the prostate through a perineal operation than from permanent drainage through the bladder. He said he could not accept the statement made that malignancy usually started in the posterior commissure; there were cases operated on in

which there were no indications of malignant infiltration of the capsule or the commissure.

With regard to malignant disease of the bladder, Dr. Pilcher said he had seen a number of cases, one of which he operated on a few days ago. The figures of Nitze and others could not be accepted without question. Dr. Pilcher said he could not see how it was possible to accept such statistics which showed a large number of recoveries resulting from simply removing the tumor and cauterizing through the cystoscope. He favored an extensive operation, always allowing the bladder function to remain intact.

The multiple papillomata found in the bladder almost invariably are situated near the ureteral openings, or along the course of the ureter. Where one could not remove the entire tumor as much as possible of the tumor should be removed, and the base cauterized and so destroyed. Multiple papillomata were, in his opinion, all malignant. Any growth which recurred and recurred was a malignant one, even though one was not able to demonstrate characteristic cells.

DR. TERRY M. TOWNSEND said that no reference had been made in the papers presented concerning the treatment of inoperable growths by fulguration as originated by De Keating-Hart. The technique, as demonstrated by the originator of the method, is simple and we are assured of its safety. Inasmuch as hemorrhage is so constant in malignant bladder growths and fulguration promptly controls the bleeding from a malignant growth, he believed that something could be gained by the use of this method after suprapubic cystotomy and free exposure of the involved area.

With regard to the removal of papilloma by the cystoscope, Dr. Townsend believed that it could only be done in those exceptional cases where ideal indications existed. He had seen several attempts made at the removal of papillomata, each one either partially successful or followed by recurrences of the growth.

DR. G. A. DE SANTOS SAXE said that he was present to learn and not to impart. There were two points, however, that he would like to make brief mention about, and one was in regard to the question of diagnosis. He noticed that both readers of the papers dwelt upon the necessity and desirability of making an early diagnosis of cancerous disorders. We need in cancer, especially in cancer of the prostate and bladder, some method of diagnosis, such as the serum diagnosis test, which would give us some clew as to the presence of cancer, and possibly Weil, and others, who were working along the lines of precipitins and hemolysins might be

able to aid us in the attainment of this object. The second point which Dr. Saxe called attention to was the fact that some cases of hypertrophied prostates which were operated upon, some months later, showed recurrences. There were present hematuria and other symptoms which pointed to malignancy in the remains of the prostatic tissue. He said he would like to hear the experiences of others present to learn if they had seen cases of prostatic hyperthropy operated upon by other surgeons, where there was some prostatic tissue left that afterwards showed malignancy. Dr. Saxe thought he had just such a case at present under observation. This patient was operated upon by another surgeon. The prostate was removed suprapubically last October. He now had a hematuria with very marked cachexia and an obstruction which could be felt with an instrument in the prostatic urethra. The patient has been complaining for some months past of persistent sciatic pains and dragging pains in the perineum,—signs which are very suggestive of carcinoma in the prostate.

Dr. Saxe asked Dr. Greene whether, in his studies, he ever came across any figures regarding the frequency with which the bladder became involved in cases of carcinoma of the prostate. A study of this subject had been published by Dr. Mandlebaum of the Mt. Sinai Hospital. He found many more carcinomas of the bladder associated with carcinoma of the prostate than was generally believed. It was interesting to know from the viewpoint of surgery, how frequently, as a matter of fact, the bladder is involved in the cancerous process.

DR. EDWARD L. KEYES, JR., said that he had nothing to add to what he had already said except to thank the gentlemen for their comments upon his paper. The electric current gave more heat under water than one would expect from such small cautery points.

DR. BISSELL, in closing his part of the discussion, said that he did not believe Dr. Pilcher had understood what he had said in regard to the pathology of cancer of the prostate. He stated that the growth often began outside the prostate, inside the capsule, but frequently it was found even in the center of the lobe itself. Albarron understood that it began in the hypertrophied position of the middle or lateral lobes. If such were the case then if one removed every prostate that was hypertrophied, there would be no cases of cancer of the prostate.

As to Dr. Saxe's statement with regard to cancer, he said he had seen cases reported where the cancer had appeared after the hypertrophied prostate had been removed. Whether all of the prostate had not been removed, or whether the cancer had started already under the capsule, he could not state definitely.

DR. GREENE, in closing the discussion of his paper, said that he had published in the *New York Medical Journal*, October 24, 1903, a paper entitled "Cancer of the Prostate," in which was related the history of a patient from whom a small cancer of the prostate in the middle of one of the lateral lobes was removed. The patient had no residual urine and no enlargement of the prostate, but did have severe pain in the region of the prostate and was operated upon for the relief of this pain, under the impression that probably stone in the prostate was present. This patient is still alive, over six years after the operation, and has had no recurrence. In Dr. Greene's opinion the diagnosis of cancer of the prostate can in the vast majority of cases be made previous to operation if the whole symptom complex be considered.

Replying to Dr. Saxe, Dr. Greene stated that he had read Dr. Mandlebaum's paper and believed that cancer of the prostate to be often associated with the malignant papilloma of the bladder, even if no direct connection could be made out. Concerning malignant growths of the bladder, when he had been called upon to operate it was for the relief of hemorrhage or pain, generally the former and something had to be done immediately. In his experience in half a dozen cases there were better results if it was possible to remove a part of the growth, than in cases where an ordinary permanent suprapubic drainage of the bladder was instituted without any attempt to remove any part of the growth. The above refers, of course, to those cases in which the malignant growth was so extensive that there was no possibility of its entire removal.

Dr. Greene said he was very grateful to Dr. Keyes for the presentation of his case. It was possible, at least theoretically, that the high frequency currents might be of use in the treatment of malignant diseases of the bladder, particularly in those cases that were attended with hemorrhage and in which it was impossible to remove the growth entirely



OBITUARY NOTICE

We regret to announce the death by suicide of the distinguished urologist, F. Tilden Brown. His friends are of the opinion that Dr. Brown had been suffering from severe nervous breakdown for some months, if not years.

THE GENERAL PRACTITIONERS' DEPARTMENT

IV. METAL URETHRAL SOUNDS *

Having described the soft, flexible instruments for urethral exploration, we must consider next the metallic urethral sounds. These serve for both exploration and for dilatation, and may be regarded as the most important instruments in the equipment of the practitioner desiring to treat urological cases.

The Best Quality Is Cheapest. For ordinary purposes the practitioner needs a single, complete set of metallic sounds, and if he selects them properly they will last a lifetime. These instruments may be purchased very reasonably from makers who sell a cheap class of goods, but when such sounds of inferior grade have been boiled a few times, the nickelplating on their surface turns black and the sounds become rough and practically useless. Nothing is more unpleasant than to be obliged to use roughened, tarnished sounds in one's private office. Patients in our public hospitals perhaps do not expect better, although there is no reason why hospital patients should not get the same care in these little details as is accorded to private patients. The point we wish to emphasize is that sounds should be purchased from a trustworthy maker, and should be heavily nickelplated and well polished.

How to Care for Sounds. When such sounds are secured, they should be kept in such a manner as to preserve their coating of nickel. The chief point is to dry them thoroughly by vigorous rubbing with a cloth, of a piece of "chamois" leather, after they have been rinsed in very hot water. The drying should be done while the sound is still hot. Sounds should be laid away in a dry place, if possible, protected from dust and moisture by wrapping in gauze or soft towels. Ordinarily, with care, they will keep bright for a long time. Should they show signs of tarnishing, they can be cleaned with one of the powdered silver polishes that have been introduced within recent years. An excellent cleaning agent is the preparation known as "Bon Ami," which might be regarded in truth as a friend of nickelplated instruments.

The Kind of Sounds to Use. For general work a set of curved sounds, with conical ends and shaped according to the so-called Guyon curve, are the most useful. As to sizes, those from 18 to 32 F. are most useful. In this country these sounds are sold under various names. Some makers list them as Van Buren's; others as Gouley's. The French

* Continued from the March issue.

makers describe the same sounds, as Prof. Guyon's. Each maker has some slight differences in the metallic sounds which he offers for sale. The chief points to be noted in selecting a set of sounds are that they must be accurately calibrated, according to the French scale, properly marked (sometimes a sound may be found wrongly stamped, a size too small or too large), and that they are all evenly matched, i. e. that sounds belonging to some other set slightly different from the one you

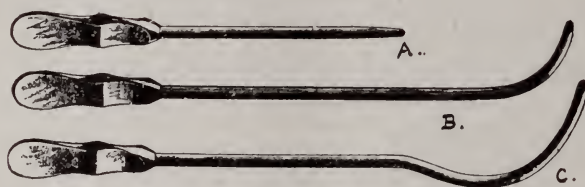


FIG. 9.

A—Straight Sound.

B—Sound with ordinary curve.

C—Beniqué Sound.

are purchasing, may not be included in your set. It might seem superfluous to insist upon this point, but the truth is that there are some instrument dealers who are only too glad to make up sets out of "job lots" of sounds from various sources, which naturally cannot possibly match.

The exact curve of the sounds to be selected is a matter for some thought. Usually the standard urethral sound is made according to the specifications of Thompson, who found that the most natural curve for a sound which was meant for the posterior urethra was an arc comprising three-tenths of a circle, the diameter of which was 8.2 c. m.*

The length of the shaft usually is about 25 cm. varying from 24 to 36 cm. The longer sounds are useful in special conditions, e. g. prostatic hypertrophy. The handles should be, in the first place, sufficiently large to be conveniently grasped on the flat with the thumb and forefinger, and should preferably be rather heavy, as a heavy handle serves as a counterbalance during the act of introducing the sound. This point will be referred to later. The vesical end of the sound should be gently tapering, or conical, and not blunt-pointed. Sounds with the latter variety of points are very much more difficult to introduce.

[* A slightly more ample curve was recommended by Gély, in 1861, who found that the average curve for a metallic sound should be one-third of a circle of 12 centimeters diameter. One cannot make a mistake, however, by adhering to the standard Thompson curve.]

Straight Sounds. In addition to the sounds with the regular curves it is desirable that even the general practitioner should have at least a few straight sounds in his outfit. It is a cardinal principle in urological diagnosis and treatment that the bladder must not be entered during any manipulation, if this can be avoided. Therefore, when a narrowed portion of the anterior urethra is to be dilated, especially if this narrowed place is situated in front of the bulb, it is best to employ straight sounds which reaches only down to the bulbous urethra. It will be sufficient to have sizes from 24 to 32 of these straight sounds. They consist of a straight shaft, with a handle similar to that of the curved sounds and with a rounded or olive-shaped tip. These straight sounds are exceedingly useful in the treatment of chronic anterior urethritis, particularly for massaging the urethral glands over the sound as it lies in the canal.

Beniqué Sounds. These are mentioned here, although they are not necessary for the general practitioner's equipment.* It is best to be informed as to their features, in case, for some special reason, one might have occasion to employ them. The Beniqué sound is constructed like the ordinary curved sound; except that, instead of the slight curve



FIG. 10—Beniqué Sound.

which the latter show, the Beniqué instrument has a far ampler curve, constituting an arc which includes a far larger portion of a circle. Sometimes the Beniqués are made of flexible metal, e. g. of tin. The object of these special sounds is to serve as more convenient means of dilating deep-seated, large-calibre strictures, or simply of dilating the posterior urethra. Six of these sounds, in sizes from 24 to 32 French, form a set sufficient for all purposes.

THE DAWN OF UROLOGY

Diseases of the urinary tract have formed a part of medical knowledge from the earliest period of medicine. Functional disturbances of the bladder, and their treatment, and hematuria, an affection which was common in Egypt on account of the prevalence of certain parasites (Bil-

* Some of the older writers "set great store" by these sounds and recommend them highly, but they are not extensively used.

harzia), are mentioned in the earliest medical manuscript known,—the famous papyrus discovered at Luq̄sor in 1872, by Ebers. This medical archive, which has played such a prominent rôle in our knowledge of ancient medicine is attributed to the Sixteenth Century B. C. Susruta, about 900 B. C., studied the pathology of stone in India, and recommended perineal lithotomy by a method which was described in almost the same words two thousand years later.

Coming to the comparatively recent science of the Greeks and Romans, we find that Hippocrates mentions a number of urinary conditions, particularly periurethral and prostatic abscess, hematuria and stone in the bladder. Every medical student who has taken the Hippocratic oath knows that it contains a clause reading: "I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work," meaning the lithotomists who were a guild distinct from that of the regular physicians.

Ammonius, a celebrated surgeon of Alexandria, in the Second Century B. C., was the first to dare crush a stone that was too large to be extracted through the perineal lithotomy wound. Four hundred years later, in the Second Century A. D., Celsus gave us a most beautiful description of the prerectal incision for lithotomy, and his method slightly modified was used for centuries afterward. Celsus' incision is used even to-day in perineal prostatectomy.

The first writer to mention stricture of the urethra was Heliodorus, while Galen, with his genius for experimentation, was the first to show that the urine is formed in the kidney, and that its flow could be arrested by ligating the ureters.

The Byzantine period, in the Fourth Century of the Christian Era, may be credited with one shining historic event in the chronicles of Urology, namely, the first mention of the pathology of hypertrophied prostates by Oribasus, who spoke of scleromas of the neck of the bladder.

We come next to the period of medical history, during which the Arabs contributed so much to the gradually accumulating store of medical knowledge. Here we must mention the fine passage in the writings of Serapion the Elder, who wrote in the Syrian language towards the end of the Eighth Century. We quote his words, after Albarran: "The extraction of renal stones through the loin is really dangerous, although certain ancient writers have advised the removal of renal calculi with the knife, cutting behind, above the iliac bones; yet I think that this is a very daring procedure, full of danger, and apt to lead the patient to the edge of the grave." Perhaps under the influence of this warning, nephrolithotomy was not performed until ten centuries later, by Durham.

Albucasis (Ninth Century A. D.), the greatest of the Arab physicians, described the procedure of catheterization with such accuracy that his description was copied almost literally by other writers at a much later period. A curious passage in Albucasis' writings concerns lithotomy in women. He begins by remarking the great difficulties surrounding the operation in a woman, perhaps a virgin, resulting from the fact that no woman would expose herself in front of a physician, particularly not if she was married, and was under the orders of her husband. He then speaks of the difficulty of finding a woman skilled in surgery who would undertake the operation, and finally gives directions as to how such a woman should be instructed by the surgeon who should be present close by in order to guide her. The exact position of the woman-operator's fingers, the method of incision, and the mode of seizing and removing the stone are given in detail.

UROLOGIC BREVITIES

Beware of the uncertainty of some of the functional kidney tests. The phloridzin test may show delayed glycosuria for a long time, yet the kidney be normal enough to sustain life.

When the patient's condition is bad, and the renal function doubtfully efficient, the conservative surgeon prefers to incise and drain a pus kidney and to remove it at a subsequent operation.

Do not be too hasty in recommending suspension of the kidney, as a panacea for all nervous and dyspeptic symptoms due to a floating kidney. Ask the experienced surgeons, and they will tell you that nephropexy often makes these patients worse.

In dilating strictures by means of sounds, above all, do not hurry, and do not use force.

Individuals vary greatly as regards the temper of their urethrae. Always acquaint yourself with the amount of reaction, the degree of pain produced, the extent of dilatation permissible in any individual patient before using instruments boldly in his urethra.

Never allow a patient to "treat himself" by introducing instruments into his own urethra. The temptation to allow this is sometimes great in crowded dispensaries.

It is a patient's inalienable right to be protected against infection, especially venereal infection in your office. Be sure to boil the tips of irrigators, syringes, etc., before using them.

Nervous and over-anxious patients often demand daily treatment with urethral instruments "to hurry the cure." Do not be weak enough to let them come oftener than is necessary or advisable.

Over-treatment is the *bête noire* of the amateur urologist. Experience teaches that much harm and no good can come from too much local interference in urologic conditions.

Never neglect internal and general treatment in your venereal cases. Remember that iron, quinine, strychnine, arsenic, cod-liver oil, etc., are made not only for the "medical case," but also for the genito-urinary patient.

The insoluble mercury preparations are useful in the form of injections in mild, slow, inactive cases of syphilis, as a routine treatment. The soluble preparations are best for the acute, active, virulent cases when immediate effects are wanted.

Forget the old teaching "mercury in the secondary stage, mercury and iodides in the tertiary." Give iodides whenever there are any lesions you want to heal, or whenever the patient has pain. Many a patient is filled with mercury to complete poisoning without effect, when a course of iodides would do the trick *cito et jucunde*.

Patients with strictures of the bulbous urethra must report to the surgeon once or twice a year indefinitely, for the passage of a full sized sound, after they have been discharged as cured. They are the men whom Bazy has aptly called "the perpetual subscribers" to dilatation.

Suspect infection of the renal pelvis (pyelitis; pyelonephritis) whenever you have a persistent pyuria not accounted for by urethritis, or prostatitis.

Pus from the kidney and renal pelvis settles in a solid, even layer, at the bottom of a glass within a few hours: Bladder pus is always surmounted by a mucous cloud, settles more slowly, less evenly, and less thickly.

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DISEASES OF THE VERUMONTANUM AS A CAUSE OF URINARY OBSTRUCTION¹

By GEORGE KNOWLES SWINBURNE, M. D., New York City

WE are all familiar with acute urinary retention due to involvement of the posterior urethra in acute gonorrhea where the retention seems to be caused by spasm of the compressor muscle. This I have always looked upon as being due to a reflex from involvement of the verumontanum. In these cases there may or may not be an acute prostatitis accompanying it. I have noted cases in which the prostate has remained involved after the spasm has been relieved, following a subsidence or partial subsidence of the inflammatory condition in the posterior urethra.

Some of these acute cases may go on and become chronic, the urinary retention persisting. Some of these cases are temporarily relieved by the passage of sounds into the bladder, when the patient for a longer or shorter time will pass a full stream, which then will gradually narrow down again, giving the impression of there being stricture. And this condition may go on for an indefinite period.

I have in mind the following case which came to me about five years ago. A man then about fifty-five years of age, who some twenty years before this came to New York seeking relief for what was supposed to be a tight stricture. He consulted a prominent specialist at that time, who performed a perineal section with a temporary brilliant result. About ten days after he had returned to his home, he found himself in

¹ Read before the New York Urological Association, Jan. 26, 1910.

exactly the same condition as he was before, and ever since that time he had been relieved from time to time by the passage of sounds, often using them himself. His urine was very cloudy, he had about four ounces of residual urine. A 26 French sound could be passed at first with great difficulty through the compressor muscle, after which a sound up to 30 could be easily passed. Examination of the canal with urethroscope showed no narrowing at any point and no stricture tissue, but the verumontanum was found to be chronically inflamed, congested, and bled easily. A few applications with nitrate of silver through the urethroscope, made a week apart, relieved this condition for a considerable period, but I have never been able to get the patient to remain long enough under treatment to see whether this condition could be completely cured. At times he will completely empty his bladder, but if he goes too long almost the same condition persists that he has had for all these years—partial urinary retention and a gradual narrowing of the urine stream until again relieved by sounds.

Another case illustrating this condition:

I was consulted early in the winter by a young man twenty-six years old, who said he had nocturnal enuresis for a period of about a year. Two years ago he had his first gonorrhea and was under treatment during the whole year, when his present symptoms came on. During the day he had great difficulty in urinating and only by great pressure could he do so, but along toward three o'clock in the morning when he was profoundly asleep he would wake to find that he had urinated a great deal. He was sent by his physician first to consult a neurologist, who was not able to make any suggestion; later he was sent to another man who made a cystoscopic examination and found nothing. After urinating about eight ounces for me I passed a catheter and drew off sixteen ounces of urine; then with the posterior urethroscope an examination showed almost the entire posterior urethra congested and bleeding easily to the touch. I swabbed it thoroughly with a 20 per cent. solution of nitrate of silver. The following week when he called he told me that he had urinated at night in sleep

only twice during the week, and the amount of residual urine was reduced to eight ounces.

This case impressed me very strongly as one in which the involvement of the verumontanum caused this urinary retention. While he was awake he was unable to relax the compressor muscle sufficiently to empty the bladder and it was only by muscular pressure that he could urinate at all. But when he was profoundly asleep this muscle would relax sufficiently for at least a large amount of urine to flow. This patient came to me for several weeks, during which time I was able to make considerable improvement, but he has since passed from observation. At the time he left he had enuresis about once a week, and the amount of residual urine seemed to vary between four and six ounces.

Some of these cases may be non-venereal in character, due to the same cause, however; disease of the verumontanum.

I had a case under my care this fall, a man 46 years of age, who for several years had great difficulty in starting the stream, and he had gone from one physician to another. Some told him there was nothing the matter with him. One man passed a sound and taught him how to use it. This he did for some time, finally infecting his bladder, so that at the time he came to consult me he had cloudy urine containing bacteria and colon bacilli. He had four ounces of residual urine. Through the urethroscope the verumontanum was found to be congested, swollen and bleeding to the touch. Under treatment which consisted in his case at first of applications of 20 per cent. nitrate of silver through the urethroscope to the affected part; afterwards of a strong preparation of iodine made in the following manner: 96 grains of iodine and $\frac{1}{2}$ ounce each of ether and alcohol, he gradually improved. His urine became clear and generally he completely emptied the bladder.

These cases, illustrate to my mind the manner in which disease of the verumontanum may act as a cause of urinary obstruction.

CACODYLATE OF MERCURY IN THE HYPO- DERMIC TREATMENT OF SYPHILIS

By LOUIS GROSS, M. D., San Francisco, Cal.

THE constitutional treatment of Syphilis resolves itself into the use of three remedies, Mercury, Potassium Iodide and Arsenic.

Mercury is the sovereign remedy and this is administered by mouth, inunction, fumigation, bath, and injection.

IN MOUTH ADMINISTRATION we must remember the caustic (or irritant) action on the intestinal canal, the frequent and distressing disturbance of digestion and appetite and the liability to carelessness of the patient in taking his treatment.

INUNCTIONS cause considerable cutaneous irritation, they are uncleanly, they are suggestive and even very embarrassing at times, they require time and patience in their application which many patients will not devote, and the amount of mercury absorbed is variable.

FUMIGATIONS present numerous disadvantages. There is considerable time consumed in taking them, especially at home, and rarely are there bath establishments where they can be properly given. The fumes of calomel are also irritating to the mucous membranes.

BATHS are rarely employed.

INJECTIONS are coming into vogue and are gaining deserved popularity, because the imperfections in administration are eliminated. The hypodermic administration of mercury has been used since Scarenzio in the middle of the last century injected calomel for the cure of syphilis. The subject though old is full of vigor; discussions as to the best and safest mode of injection are still going on with unabated energy.

Preparations, both soluble and insoluble, have appeared from time to time on the syphilitic horizon, but imperfections in administration and the disturbances induced have forced most of them into obscurity. I do not wish to convey the impression that hypodermic administration of soluble preparations

is the only method of treatment, but I can unhesitatingly advise their use as the *routine* treatment in our cases of syphilis.

Many conditions are necessary to make a preparation ideal, and efforts are constantly being made to secure one that would be: (1) Active, (2) Painless, (3) Give no nodulation, (4) Soluble.

ACTIVE AND PAINLESS. Ordinarily, one would judge, it would only be necessary to increase a particular ingredient to make the preparation active, but the result of this with all the ordinary mercury salts would be a solution that would give nodulation or induration and be so painful as to make the increase prohibitive.

With a special Cacodylate of Mercury properly prepared, the dose can be increased two or three fold and yet be free from nodulation and practically painless. This undoubtedly is due to the fact that the mercury is in real organic combination, in which form we know that most of the metals exhibit far less of their irritant and toxic properties toward living cells.

NODULATION. Nodulation appears largely to be due to a coagulation by the mercury of the albumins in the tissues surrounding the injected spot. Because the mercury is not readily absorbed by these coagulated tissues, a vicious cycle is established, the injected tissues lose their tonus, further local damage is done by the unabsorbed mercury, and the pain and annoyance react on the patient's general condition.

SOLUBILITY. Robert W. Taylor¹ of New York says that "whereas at first I advocated soluble hypodermic injections as a treatment of reserve utility and exigency, I now look on it, in many cases, as highly valuable for routine and methodic treatment, and one of our best measures in general and chronic mercurialization. The idea that watery mercurial solutions pass very rapidly through the system and leave the patient unmercurialized is a delusion." In the discussion of intramuscular injections of insoluble salts in the treatment of syphilis this writer further says that he regards this use of insoluble salts as unscientific, mutilating, uncertain in effect, and more or less dangerous to health and even life.

¹ Robert W. Taylor—Discussion—*J. A. M. A.*, Aug. 3, 1907, page 368.

With the insoluble agents absorption takes place slowly and progressively and from this there is always the danger of a cumulative intoxication. Should this occur, it would be necessary to remove the over-supply of the insoluble preparation in the tissues by surgical means.

TECHNIQUE

SYRINGE. The best form of syringe is that of Luer, it being all-glass and easily sterilized.

NEEDLES. Platino-iridium needles should be employed. As I have had considerable difficulty in obtaining platino-iridium needles I also use the seamless steel. The needles should be 24 gauge, $1\frac{1}{4}$ inches long. To avoid pain it is important that the point be very sharp.

POSITION OF PATIENT. Various positions are assumed. Formerly I had the patient standing erect, but lately I have had the patient lie on his abdomen, face downward. In this position the muscles are relaxed and those nervous individuals, who have a tendency to move just about the time the thrust is made, are prevented from doing so.

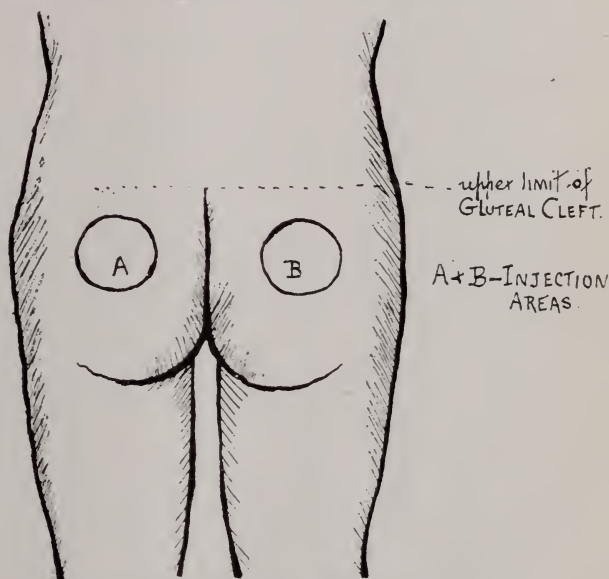
SITE OF INJECTION. The best location is the gluteal region above the level of the great trochanter, using the right and left side alternately (See Figure).

DETACHMENT OF NEEDLE FROM SYRINGE BEFORE INJECTION. This is not necessary when soluble preparations are employed, since they may be injected intravenously without the danger of causing pulmonary infarction. I have never detached the needle from syringe to see that the point of the needle is not engaged in the lumen of a vein, but as a precautionary measure, one may withdraw the piston, and observe if any blood is drawn into the barrel.

PREPARATION OF SITE. The site to be injected should be washed with alcohol or ether, preferably the latter.

INTRODUCTION OF NEEDLE. Exclude all air from the barrel of the syringe before injection. Dry the needle with gauze or cotton and insert rapidly through the skin into the

muscle. A hesitating and slow insertion is painful. The solution of mercury is introduced with extreme slowness. This is a very essential precaution that many do not observe. If the syringe is emptied rapidly, the liquid injected tears the tissues apart before absorption is possible, but where injected with extreme slowness absorption can occur and the tissues adapt themselves to the displacing liquid. Most authorities recommend plunging the needles at right angles; horizontally, if patient is erect, perpendicularly if lying down. I have found it less painful and much easier if it is inserted at an angle.



SITES FOR HYPODERMIC INJECTION

WITHDRAWAL OF NEEDLE. Care should be exercised in its withdrawal, as a cellulitis is liable to develop by the entrance of the mercury into the subcutaneous tissues surrounding the track of the needle. Should there be an oozing of blood from the puncture after withdrawal of the needle, a little pressure will cause its almost immediate disappearance. After this the parts should be massaged and a strip of Zinc Oxide plaster applied over the puncture.

DOSAGE. The Cacodylate of mercury preparation I have been using contains 8 milligrams ($\frac{1}{8}$ grain) of mercury calcu-

lated as metal, in each cubic centimeter (16 minims) of the solution. I commonly inject 1 cc. (16 min.) about three times per week. Where the case has been severe and requires drastic treatment I have given 2 ccs. (32 min.) at each injection to get the disease rapidly under control. Where the patient's business has prevented visits three times per week, I have given 2 ccs. (32 min.) once or twice per week.

In the last nine years experience in the use of injections, three and one-half of which have been with mercury cacodylate, an abscess has never occurred, because I always aim to exercise scrupulous care in all details. Abscesses are naturally due to faulty technique, and with soluble preparations, should never occur.

An advantage in cacodylate of mercury is the presence of arsenic. Arsenic is beneficial in many obstinate cutaneous manifestations and in cutaneous affections superimposed on the syphilitic infection. In my cases I have oftentimes been astounded at the rapidity with which the syphilides in the early secondaries have disappeared. The arsenic it contains may be an important factor.

I have had only one case where there were symptoms of intoxication. This was in a worker in lead and he had an idiosyncrasy against mercury. Inunctions and internal treatment were substituted, but the intoxication was even greater. Mercury in all forms was discontinued and he was placed on Zittmann's Decoction, which caused all symptoms to disappear after the use of the second gallon. Outside of this particular case, I have had no ill-effects.

The advantages of this method and this preparation are:

Exact and easily graduated dosage.

Absence of mercurial intoxication.

Little or no inconvenience in application.

No disturbance of digestive functions.

Certain, rapid, energetic action.

No uncleanness.

Leaves stomach free for the administration of adjuvants.

Patient is kept under frequent observation of the physician and hence thorough control.

THE GENERAL PRINCIPLES OF TREATMENT OF VESICAL HEMORRHAGE

By CHARLES GREENE CUMSTON, M. D., Boston, Mass.

WHEN one is called to a serious hemorrhage of the bladder what line of treatment should be followed?

The surgeon should never leave his patient before the hemorrhage has been completely controlled and he must also be sure of having the most rigorous observation for the following few days. No matter what may be the cause of the hemorrhage, there are certain general principles of treatment which must always be taken into consideration; they have a particular interest because, if unknown, the most varied and the most active treatments of hemorrhages in general, will certainly fail. These principles have as basis the pathologic physiology of bladder hemorrhage. How and under the influence of what conditions do these losses of blood occur?

There is not a single portion of the urinary tract which cannot become the source of a hemorrhage, a fact which, given the very varying nature of the lesions giving rise to the loss of blood, extraordinarily multiplies the sources of the hematuria. It may have as an etiologic factor traumatism, inflammation, organic lesions, or foreign bodies in the kidney, ureter, bladder, prostate and deep urethra. The cause of the hemorrhage may consequently be mechanical, inflammatory, congestive or organic.

In hematuria arising from a mechanical cause, one should include not only external traumatism, such as falls, wounds and blows; not only traumatism which may be termed surgical, such as that arising from catheterism, lithotritry, etc., but also lesions produced by the presence of a foreign body. A calculus is nothing less than a body giving rise to traumatism of the mucosa, which it irritates and tears, after having produced hyperemia therein. It is on account of its great vascular richness that the urinary apparatus is so often the theatre of hemorrhage. These hemorrhages, quite infrequent in children

and adults, are, on the other hand, frequent in elderly subjects. Here, the influence of age is evident, but, in point of fact, what is observed in children and in adults having stricture, who come under observation presenting an enormously distended bladder? Their hematurias are rarely of any importance and this is simply due to the less developed vascular system of their urinary apparatus, likewise the greater resistance of their circulatory system. Quite on the contrary elderly men are the possessors of a very markedly developed venous apparatus which, at the same time, is much more friable than in younger subjects. The return circulation is laborious on account of the vascular dilatation and the degeneration of the muscular structures of the vessels of the bladder, so that the latter viscus is ready to bleed excessively from the slightest cause.

Inflammation plays a most important clinical part in vesical hematuria. In point of fact, it possesses a very prominent place in the list of agents which produce it. It is quite sufficient to recall what takes place in the acute cystitides, (particularly in gonorrheal cystitis, which is occasionally so very markedly hemorrhagic and to note that the loss of blood is in no manner modified by rest in bed and that frequently, on the contrary, it is more abundant at night than during the day) in order to put in evidence the inflammatory factor in the case. Without any doubt, the loss of blood is far more apt to take place at the end of micturition and one cannot doubt that the contractions which arise and efforts that the patient cannot control are the predisposing causes.

However, it is to be pointed out that the influence of congestion is still more manifest and far more important than the inflammatory process itself and to prove this we have only to take into consideration the nocturnal exaggeration of hemorrhage in the various forms of cystitis. But congestion has no need of an inflammatory process for its production and it is of daily occurrence to meet with it in cases of aseptic retention, consequently where the amount of inflammation is excessively slight or does not exist at all. In these cases inflammation does not come into play and, nevertheless, the urine voided contains large quantities of blood.

Now what takes place in severe hemorrhage? It appears without being accompanied by any other symptom and in the midst of an otherwise apparently perfect health. No matter how carefully the patient is kept at rest, blood continues to be voided in large amounts and at length the hemorrhage reaches its maximum when, to the already acquired congestion, the congestion produced by the horizontal position in bed, combined with sleep, becomes added. The only causes whose effects can be determined are errors in diet, the abuse of alcoholic drinks and venereal excitement, in other words, causes which are capable of producing a congestion of the urinary apparatus. Then again, how can one explain the sudden disappearance and still more sudden return of the loss of blood if a preponderant part is not given to congestion? These facts can only be explained by admitting the action of some influence which may be temporary or permanent, suspending or accumulating its effects, like congestion. None of these causes, however, can in themselves produce hematuria, because this symptom cannot exist unless there is some factor; the latter is temporary or permanent, but it must exist.

When once the hematuria occurs, the urinary reservoir will then act in its turn and, as the bladder is an organ essentially congestive both from its anatomy and physiology, congestion is its most frequent manner of reaction.

The formation of clots resulting from hematuria may produce unbearable pain, especially if the bladder is already diseased. And what is still more, the bladder becomes distended from the fact of the hemorrhage and afterwards on account of the hindrance to micturition produced by the blocking of the vesical outlet from the coagulated blood. This distension creates an excellent soil for infection and inflammation, because, if the congestive state renders the bladder more sensible to distention, it must not be forgotten that the distension in itself produces congestion. But this is not all. The bladder, on account of its increased size, compresses the numerous venous plexuses in the small pelvis with the result that the return circulation will be defective. Now all these causes will become united in their effect, an intense congestion occurs and the di-

lated capillary vessels burst, so that the bladder bleeds secondarily on its own account.

In the treatment of vesical hemorrhage it is the distension, inflammation and congestion that must be attended to, but one should not lose sight of the fact that the diagnosis of the causal lesion and its rational treatment will alone result in a successful outcome. It would be a great illusion if the symptom "hematuria" were alone treated. In order to combat the hemorrhage successfully the surgeon should resort in the first place to those measures which may control or cause to disappear the influence of the causes of the loss of blood and the first indication to be fulfilled is to put the bladder at rest.

Repeated contractions of the bladder certainly favor the continuation of and increase the hemorrhage, even when they give rise to no pain. If they cause suffering they are essentially hemorrhagic. Consequently, various narcotic drugs given per rectum, and particularly morphine subcutaneously, are distinctly indicated. In some cases the same result may be obtained by instillations of silver nitrate into the bladder, as they calm the organ indirectly by acting on the cystitis, modifying the condition of the inflamed mucosa. It is particularly in gonorrheal cystitis that they are of use and the curious fact is that in cases where no cystitis exists, where congestion alone is the cause of the hemorrhage, no result is obtained.

From its function, the bladder is an essentially contractile organ and, consequently, in order to prevent the return of the hemorrhage when once it has been controlled, this function must be suppressed and this result is obtained by the use of the permanent catheter. When once the bladder has been emptied by the catheter or sound, a permanent catheter should be placed in the bladder in order to assure the most absolute rest of the organ. But the permeability of the instrument must be carefully watched and every time that there is any evidence of the lumen becoming obstructed, it should be cleaned out by mild irrigation. It is, however, better to withdraw the instrument and insert a fresh one. It should never be allowed to remain if defective in function, because this would be an added

cause of vesical congestion, the instrument acting as a foreign body .

The second indication to fulfill is to empty the bladder of clots, because, as long as it contains either coagulated blood or other foreign bodies, it will continue to bleed. The accumulation of urine, blood, clots and foreign bodies may give rise to pain and, at any rate, it will result in distension and irritability of the urinary reservoir; congestion will then come into play and with it a remarkable predisposition to infection and inflammation. In either case all treatments will fail if, in the first place, the organ is not emptied of its contents.

Several interferences are of common use for evacuating the organ, and, in the first place, I will consider aspiration, which should always be resorted to in the first place, while if it fails, more serious interferences may be adopted. These interferences are cystotomy, cystostomy and prostatectomy, of which I shall have a few words to say, without, however, referring to the technique.

To Mercier is to be given the credit of having been the first to advocate aspiration, but Guyon's writings have fully developed the technique of this procedure. Aspiration consists in withdrawing, by a sound or an aspirating instrument, the clots contained in the bladder and if one is used to genito-urinary technique, it can be done without any assistance.

The necessary instruments are a metallic sound, a syringe and the liquid to be injected.

The best sound is the evacuating sound of Guyon (calibre 24 French) and the curved sound of Béniqué. Nevertheless, a rubber catheter or an elbow linen catheter, or one of silk, having a calibre of from 16 to 20 French, can be used. Personally, I prefer a sound having a single eye, because upon several occasions, I have seen double eyed instruments give rise to considerable trouble; a clot becomes stuck in one eye and instead of following the lumen of the instrument it comes through and obstructs the other eye. This obstruction can never take place when the instrument has a single eye.

The aspirators of Bigelow or of Guyon require distension of the bladder, which may be dangerous. The bladder may

react in one of two ways; by the pain which will prevent aspiration or by an increase in the hemorrhage. It is far better to use a syringe. The large vesical syringe devised by Guyon is excellent. Some little changes and improvements have been made on the original model, but they are insignificant.

The fluid to inject should not be irritating and usually a 2% solution of boracic acid is the best. It should be injected tepid. Solution of nitrate of silver is to be rejected because it is irritating and produces contraction of the bladder. A very weak solution may occasionally be used at the end, when the bladder has been emptied of the clots, because it will act both as an antiseptic and astringent.

When once the sound has been introduced into the bladder and the syringe filled with the liquid to be injected, the tip of the latter is introduced into the lumen of the catheter. A certain amount of liquid is then forced into the bladder, from one-half to three-fourths of the contents of the syringe, according to the tolerance of the bladder. Then the piston is quickly pulled back and a part of the liquid comes from the bladder into the syringe drawing some clots with it. The syringe is then emptied and again filled with liquid and the same process is repeated until the last clot has been withdrawn. In most cases the hemorrhage will have then stopped.

Aspiration may be rendered difficult or even impossible from certain circumstances, the first one of which is stricture of the urethra. In this case aspiration cannot be properly performed on account of the atresia which prevents the introduction of a sound of sufficient calibre. In one case I obviated this difficulty by first dilating the stricture and then introducing a No. 20 French elbow catheter, which was sufficient. In other cases the hemorrhage being so severe, enormous clots are formed, so that breaking up this coagulated mass is not possible. The injection returns into the syringe without clots or perhaps does not return at all, so that the bladder is filled without being emptied. The evacuating sound becomes blocked in other cases and if the procedure is continued, the bladder, just like the uterus, rises towards the umbilicus and the patient undergoes intolerable suffering.

The presence of a certain amount of gravel may result in the production of a sort of mortar when mixed with blood, so that together they form a compact coagulum. Aspiration thus becomes absolutely without avail.

When the bladder is extremely painful anesthesia may be resorted to.

A gonorrheal cystitis causes distension of the bladder, which is the source of the hemorrhage. The injection of fluid preceding the aspiration distends and causes the bladder to bleed, but frequently, as soon as the last clot has been withdrawn, the hemorrhage ceases. However, even in all these conditions one should first resort to aspiration and it is only when one has become certain that the obstacle is invincible that other measures should be resorted to without loss of time.

Let us suppose that for one of the numerous causes that I have mentioned, or even without any apparent reason, aspiration has failed, what is to be done? There remains a powerful means at our command, namely, suprapubic opening of the bladder. Opening of the bladder possesses a very remarkable hemostatic power and it is to this surgical intervention that one should have recourse to when catheterism is impossible, when the permanent catheter cannot be used, or when aspiration is of no avail. It is useful because it allows one to act directly on the source of hemorrhage in some cases, by healing the inflammation of the bladder, causing the congestion to subside and placing the organ in complete rest. I believe that although the surgeon can put an end to severe and repeated vesical hemorrhages by suprapubic cystotomy, it nevertheless is an established fact that this means is not the only one to resort to and it would be dangerous teaching to advise this operation in every case of severe hemorrhage. It is quite natural that, in certain cases, a hematuria leads the surgeon to interfere, but, before reaching this last resource, simpler means should always be employed in the first place, namely, aspiration and the permanent catheter. If they fail then one should not hesitate to immediately perform cystotomy or cystostomy.

The time during which the bladder is allowed to remain

open is not uniform. In some simple cases it may be immediately followed by suture of the organ, but this can only be attempted in selected cases and usually it is better practice to drain.

In more complicated lesions it is necessary to keep the bladder open for a more or less lengthy period in order to allow an old cystitis to be cured, and lastly, in another type of case, the end to be attained is still more complicated; cystostomy with incontinence is an infirmity which one should try to avoid and the suprapubic meatus should be made to function like the urethra.

Cystotomy consists in closing the bladder when once the operation is ended, while, on the contrary, in cystostomy the organ is left open for a variable length of time, according to the necessities of the case. The formation of hypogastric continent urethra is very problematical and there is no procedure which allows one to obtain with any certitude a suprapubic bladder opening which will functionate properly. Consequently, one should restrict as much as possible the operation of permanent cystostomy.

The suprapubic incision possesses a real therapeutic value, but there are some cases where it is powerless. The first is renal hemorrhage. Here the bladder is emptied of its clots but blood continues to come in large amounts by one or both ureters and nothing can control this. Then, again, the bladder is open, but there is such a severe infection of its mucosa that evacuation and rest are no longer enough and the hemorrhage continues. Sometimes, also, when the bladder has been emptied, it is found that the patient no longer emits urine. The kidney is blocked by clots or the patient may no longer have sufficient blood, in other words, he has bled himself almost to death. This postoperative anuria is almost always fatal.

Should emergency prostatectomy be resorted to in serious vesical hematuria? To say the least, it is a most heroic treatment, which has still to prove its efficaciousness. However, when the suprapubic route is followed, the prostate may be enucleated with some chance of success, but, in these cases, the

perineal route gives a smaller death rate from hemorrhage. Be it distinctly understood that the presence of a renal hemorrhage would make the good effects of prostatectomy most problematical and, further experience has been adduced, I think that it is safe to say that prostatectomy as an emergency operation cannot be advised. It should not be completely condemned, a priori, in bladders distended from hemorrhage, because Nicolich obtained good results by performing prostatectomy at once in distended prostatics, who, as is well-known, present the best conditions for favoring the occurrence of hemorrhage.

871 BEACON STREET.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

THE PRESENT STATUS OF PROSTATIC SURGERY *

By P. DUNCAN LITTLEJOHN, M. D., New Haven, Conn.

THERE is no doubt but that the surgery of the prostate gland to-day has reached a plane of exactness, which it did not reach in its earlier history. To me this proves that the advocates of the two operative routes, the perineal and the suprapubic, who formerly were settled in rival camps, have realized that there are advantages possessed by each method; and therefore the surgeon should not limit himself to one operation exclusively. This desirable state of affairs has been reached by recent improvement in diagnostic surgery, experience having taught us, when, where and how to perform a prostatectomy.

The Mortality Rate of Prostatectomy

It is only a few years since that the literature was filled with many diverse reports of the end-results obtained following the removal of the gland. There were the enthusiasts who had extracted prostates in series of cases of one hundred upward, and who had had practically no mortality, while at the

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same time other able men gathered statistics to prove that the death rate from the operation was very high. We know now that some of the favorable reports resulted from operating on selected cases only, while the high mortality records were furnished by men attempting an operation, for which they were fitted neither by experience nor technique. At the present time, it is astonishing to note the close agreement of the end results reported by a large number of operators.

Mr. Freyer, of London, who has a very large, if not the largest experience of anyone, in suprapubic prostatectomies, reports a mortality of 6.1% in 600 cases. He finds, however, that the mortality has fallen from 10% in the first one hundred operations, to 4% in the last one hundred.

Dr. Young, of Baltimore, recognized as one of the leading advocates of the perineal incision, reports a death rate of 4.2% in three hundred cases, and also finds that the death rate is much lower in his most recent series of cases.

If we compare the results reported by numerous other surgeons with the reports just cited, we find that the difference in mortality between the two operations remains at approximately 2% in favor of the perineal operation.

Admitting, therefore, that the death rate is slightly greater from suprapubic prostatectomies, yet the difference is by no means marked enough to condemn an operation which has so many advantages. With the accumulated experience of the past few years, we are now able in most cases to determine not only when to operate, but also to solve the equally important problem of the choice of the method of operating.

Catheter Life

Before taking up the operative measures, let me say a few words concerning the *palliative treatment* of prostatic hypertrophy. Every man suffering from enlargement of the gland is by no means a candidate for an operation, although this does not seem to be shared by some over-zealous surgeons.

I have in mind a case I saw in consultation four years ago. An old gentleman, eighty-five years of age, was suffering from

acute retention brought about by sudden exposure. The catheter drew eighteen ounces of turbid urine, and a self-retaining catheter was left in place for several days, during which time frequent irrigations were used. The congestion of the prostate rapidly subsided, and in a very few weeks he was able to get along by using the catheter once every day or two. Here was a well-to-do old man, very intelligent concerning the use of the catheter, who lived comfortably until this winter, and then died of pneumonia. It certainly would have been poor surgery to have subjected him to the dangers of an operation, with the possibility of unpleasant sequelæ, when he could pass the rest of his life very comfortably with an occasional use of the catheter.

Thus, before an operation is thought of, palliative measures must be tried, even if acute retention does occur, as it is often of a temporary character. As long as vesical irritability does not preclude the use of the catheter; as long as there is no danger from renal complications, and as long as the continued mechanical emptying of the bladder does not become irksome, just so long should we refrain from operating.

The Indications for Prostatectomy

There are three main classes of cases in which we are called to operate.

First, in patients who are not too old, whose physical condition is good, whose bladder symptoms are not marked, and whose prostates present favorable features for successful enucleation.

Second, there are cases which demand surgical measures, either because of the failure of palliative treatment, or because their environment is such that treatment of this character is not practical. These men are represented by the dispensary or hospital clientèle. Sometimes they are mentally below par, and their home surroundings are such that it is impossible for them to use the catheter with any degree of intelligence or cleanliness. Such patients cannot be kept in the hospital indefinitely, so we must decide whether it is not safer

to operate upon them than to allow them to take their chances with the dangers arising from an improper catheter life.

Third, there is the class who require operative treatment, but who because of extreme age, renal complications, or circulatory changes, make it doubtful whether they can survive a major operation. Patients of this type do indeed tax our judgment as to their proper care, but since the advent of the two-stage operation, the decision is rendered less difficult even in these cases. For by performing a preliminary cystotomy, we are able to put the bladder in a fairly healthy condition, thus preventing further infection, as well as relieving the renal and cardiac systems by the removal of back pressure and venous stasis. The second stage of the operation, performed later, consists of a radical prostatectomy with the chances for recovery markedly enhanced, because the resistant powers have been brought nearer the normal.

The Question of Renal Involvement

An important point which Deaver makes concerning the risk of operating is that we should be governed, when dealing with renal complications, by the excretion of nitrogen and total solids, rather than by the presence or absence of albumin and casts. Notwithstanding the assertions of a number of surgeons that indications of kidney involvement call for immediate removal of the prostate, I am firmly convinced that we should first assure ourselves that the organs mentioned are functioning with a reasonable degree of certainty. Deaver says that "when the excretion of solids as shown by the urea content is diminished, and when the total amount of urine excreted is constantly much above the normal, I am far more chary of undertaking serious operative measures, than in the former case." (Deaver, *Enlargement of the Prostate*, etc., 1905.) In one of the earlier cases in which I personally operated, the patient died on the twelfth day after operation from anuria and uræmia. Previous to operation there had been only a small amount of albumin and a few casts, in the urine, yet the daily amount of urine was largely increased, together with a diminished amount of urea and total solids.

The Choice of the Operation

Prostatic surgery to-day comprises two main groups of procedures, the palliative and the radical operative measures

The palliative operative procedures includes: First, *Aspiration*, either suprapubic, perineal or rectal, all of which are seldom employed as they are of little value and at best are only temporary expedients employed in an emergency; Second, *Cystotomy*, which may be either a suprapubic or perineal incision. These are used generally as preliminary steps to more radical operations. The radical operations which have been used are: Castration, vasectomy, galvanocauterization, or Bottini's operation, Chetwood's modification of the latter, perineal prostatectomy, and suprapubic prostatectomy.

Castration and Vasectomy have been given up by their originators, Drs. White and Harrison respectively, as unproductive of uniform results.

Bottini's operation has been abandoned in favor of more practical measures, while Chetwood's method is chiefly used by its author for contracture of the bladder neck, or in the "bar and collar" type of small, hard prostates, where the obstruction is practically located solely at the vesical sphincter.

Thus there remain for consideration only the suprapubic and the perineal operations, each of which, as stated above, has advantages which the other does not offer, while neither is adapted for the removal of every hypertrophied prostate.

The Perineal versus the Suprapubic Route

In 1888, Dr. Watson, of Boston, stated that perhaps one-third of the cases of hypertrophied prostate were not adapted for removal through a perineal incision, and apparently no one has since that time disproved his remarks.

Going back for a moment to the pathology of prostatic hypertrophy you will remember that this enlargement may assume one of two types, the glandular or adenomatous overgrowth, of which the majority of cases are examples, and the fibrous or sclerous type, in which as its name implies, the prostate is made up of dense hard tissue, is small in size and

closely attached to the surrounding structures. These cases constitute the minority of prostatic hypertrophies. The fibrous prostate has a tendency toward atrophy, is frequently associated with contracture of the bladder neck, and usually causes symptoms disproportionate to its size. At some time in its growth it has been the seat of inflammatory processes, causing periglandular irritation which results in dense adhesions and in the partial or complete disappearance of the capsule; thus obliterating the lines of cleavage and attachment to the neighboring structures, which ordinarily make its removal possible.

Conversely, adenomatous hypertrophy always shows a marked enlargement, the swelling usually being confined to the lateral lobes. This type of prostate is also prone to sudden congestion, which in turn may result in either temporary or permanent retention of urine.

Therefore having decided that a case is one for operative treatment we must remember the differences between the types of the histological changes in the gland, and select the site of the operation accordingly.

Perineal Prostatectomy. This is the ideal route to select as far as drainage is concerned; for here gravity aids very much in the after care of the bladder, while the confinement of the patient in bed is reduced to a minimum, because of the situation of the wound. Personally I prefer Young's perineal operation which has the advantage by the dissection of the perineal and periprostatic tissues of bringing the field of operation distinctly into view, thus lessening the danger of injury to the surrounding parts. Enucleation through a vertical incision on the other hand compels one to depend entirely on one's sense of touch, and one may at times be left in doubt as to whether the entire prostate has been taken away. One reason why Young's results are so successful is the excellent after care which he has worked out for these patients. An important part of this is the early removal of the perineal tube, provided there are no contraindications, the drain being dispensed with on the second and third day. Most of the cases of fistulæ of the perineum which I have been called upon

to treat have resulted from carelessness on a previous operator's part in not allowing the wound to close as soon as possible. A patient on whom I operated recently had the drainage tube removed two days after the operation. Urethral micturition took place on the fifth day, while the wound had granulated over on the fourteenth day, both the wound and the urethra being utilized for vesical irrigations. This ability to remove the drain at an early date hastens the convalescence, by doing away with one of the most painful features of the aftercare, and thus allowing the patient more rest and thereby building up his recuperative powers.

The disadvantages of the low operation are: (1) The not infrequent occurrence of incontinence of urine which follows in its wake, caused by injuries to the sphincters of the bladder. (2) Our inability to extract a gland of large size without destroying its integrity, and (3) In contradistinction to the high operation, the interior of the bladder is not in the surgeon's field of vision in the perineal method.

Suprapubic Prostatectomy. In about two-thirds of the cases we are obliged to select an abdominal incision, because the large size of the growth does not admit of its being removed through the perineum. The interior of the bladder is exposed to view, foreign bodies are easily removed and topical applications made if needed. Inasmuch as the prostate lies above both the triangular ligament and the aponeurosis of Dénonvilliers, the floor of the perineum is not destroyed, while the gland can usually be shelled out in its entirety in a very short space of time. The destruction of the posterior urethra which the opponents of this route call a serious obstacle to its employment, has been proven to be of no consequence.

The disadvantages of the suprapubic route are that it is at times very difficult to remove a small hard prostate in this manner because of the dense adhesions. Therefore, morcellation is necessary and this is a dangerous and at times almost impossible procedure when done from above, and the floor of the bladder may be easily torn, resulting later in extravasation or sloughing and the consequent dangers of infection.

Because of abdominal drainage the convalescence is prolonged, and the patient's vitality is taxed in proportion.

Space forbids more than a mere mention of the two-stage operation, i. e., the performance of a preliminary cystotomy, thereby draining the bladder, and relieving the immediate symptoms, thus improving the patient's condition so that he can better withstand the shock of the radical operation which is performed at a later date.

Conclusions

In conclusion, we may ask: What are the indications for surgical treatment, and what results can we promise following the methods practiced to-day in the surgery of the prostate gland?

A. *The indications* for surgical treatment, are:

1. Palliative measures, including the moderate use of the catheter, should be proven valueless before an operation is contemplated.

2. Partial retention in selected cases, and complete retention in all cases, may demand surgical interference; although a contracted bladder and a severe cystitis, with or without an ascending renal infection, make a prostatectomy almost imperative.

3. No single operation or line of treatment is suitable for all cases, as each case is a law unto itself so far as the method of operation and the site of the incision are concerned.

B. *The results* that we can reasonably expect are as follows: In early operations upon favorable subjects, there is a return to normal urination, without any sequelae. In the more urgent cases, marked relief is experienced though the occasional use of the catheter may be needed, while, unfortunately, a very few individuals of this class suffer from one or more unpleasant after-effects.

Finally, I know of no more appropriate attitude which we should assume in dealing with old men suffering from prostatic hypertrophy, than that so comprehensively expressed by Dr. O. C. Smith of Hartford, in the closing paragraph of

his article published a few years ago, entitled, "Advanced Age as a Contraindication to Operation."

Dr. Smith says: "It is certainly our duty as physicians and surgeons to exercise as keen an interest in this class of patients as in those of younger years. We must remember that these people are flesh and blood, entirely capable of suffering pain and often most grateful for relief. Because they are old we must not consider that it is time for them to die, for we should endeavor to prolong life and prolong it in comfort. These aged patients are dear to some one and their lives may still be of great value."

193 YORK ST.

EDITORIAL

SUPRAPUBIC VERSUS PERINEAL PROSTATECTOMY; A RETURN TO THE TRUTH

IN speaking of the history of prostatectomy, Hugh Young aptly says that there was "first the demonstration of valuable new procedures, then a horde of bungled operations, then a discovery of miserable results, and a startling mortality, then a reaction against the procedure, and finally, but after the loss of many valuable years, a return to the truth."

Time was, not so many years ago, when the champions of each of the various operative methods defended their procedure and savagely attacked the method used by their opponents. Surgeons were divided into two great camps,—the suprapubic and the perineal partisans, respectively. This partisanship, this prejudice against methods other than they have found successful in their own hands, is characteristic of the stage of transition of nearly every phase of surgery. To-day, while there are still heard voices bitterly assailing one or the other of the two routes to the prostate, experience has carried us up to a height from which we can calmly and placidly survey the opposing camps from a neutral ground. To-day but very few surgeons assert that they use any single method of prostatectomy, and nearly all agree that there is no procedure applicable to all cases of enlarged prostate. This principle of eclecticism was first applied to the prostate, we believe, by Watson, who, in 1888, voiced what is practically the prevailing opinion to-day, namely, that neither perineal nor suprapubic routes should be adapted to the exclusion of the other, but that each should be applied according to the indications presented by the individual cases.

The present status of the question of prostatectomy was well summed up in the symposium on that subject before the American Association of Genito-Urinary Surgeons last spring. In the leading paper Chetwood of New York sounded the key-

note of the whole theme when he said that a progressive decrease of mortality was apparent in both suprapubic and perineal methods, and that seemingly the perineal had received much greater attention than the high operation. While the suprapubic method still had a higher death rate than the perineal, yet the advantages of the former were such, from the view-point of practical results, that our energies should be bent toward improving the suprapubic method and of lowering its mortality record. The advantages of the suprapubic method are, as is well known, the fact that it "is a complete operation; that it gives a large percentage of cures, and a small percentage of operative complications, is rapid of performance under conditions which afford free access to the gland."

While the eclectic principle therefore is well recognized now in prostatectomy, there is scarcely a surgeon who does not strongly favor one or the other operative route, and employs it whenever conditions warrant. Chetwood, for example, favors the suprapubic route, as has been said above; Watson, on the other hand, while a non-partisan, favors the perineal operations except in very far reaching and extensive intravesical growths. King, of Toronto, finds fully ninety-five per cent. of enlarged prostates amenable to the suprapubic method, while Gibson, of New York, ordinarily employs the perineal route, using the intra-urethral type of operation in preference. A. T. Cabot, of Boston, uses both methods, but the perineal is that of choice in his personal experience. Bolton Bangs, of New York, while not committed to any one method, urges the need of performing suprapubic enucleation in certain cases in which there is an intravesical projection which cannot be removed easily by the perineal method. We could go on down the list of eminent genito-urinary surgeons, but the opinions quoted show our meaning sufficiently.

To sum up, therefore, there is no single method of removing an enlarged prostate which is applicable with equal advantage to all types of cases. The majority of surgeons at the present time recognize this principle, and temper their choice not by partisanship, but by judgment of the anatomic peculiarities of the cases as they present themselves.

THE QUESTION OF PRIORITY IN TOTAL SUPRAPUBIC ENUCLEATION OF THE PROSTATE

IT might seem superfluous, at this date, to comment upon a question which was thoroughly discussed and definitely settled five years ago. And yet, we feel bound to say a few words on this subject in view of the customary carelessness of some present-day writers in failing to give credit where it belongs, for the introduction and technical development of suprapubic enucleation. It is not astonishing to find this state of affairs in the writings of English authors on prostatic surgery, for in England Freyer's work so dominates the field of prostatectomy that it obscures the horizon of some otherwise well-informed writers. It is not as astonishing as might seem at first glance, to find that French and German writers ignore the predecessors of Freyer, for England is nearer to them than America, and the continental writers are slow, as a rule, to give credit to Americans for advances in medicine. It is inexcusable, however, to find American writers who either carelessly or deliberately ignore the true history of suprapubic prostatectomy.

As early as 1887, MacGill, in England, and Belfield, in this country, performed partial suprapubic prostatectomies, shelling out as much of the hypertrophied mass as was then considered safe. To MacGill and to Belfield we owe the first attempt at intracapsular enucleation of the prostate suprapubically. It was not until 1890, that Vignard for the first time showed in cadavers that the prostate could be enucleated *in toto* by insinuating the finger between it and its so-called capsule. Finally in 1895 Fuller, of New York, reported six cases in which he successfully shelled out the prostate by the suprapubic route. He used counter pressure in the perineum to assist the finger in the bladder in peeling out the prostate. Fuller's method of operation was taken up by Guiteras, who modified it by inserting the free hand into the rectum for the purpose of counter pressure. The first report on Guiteras' modification of Fuller's method was read at the International Medical Congress in Paris in August, 1900. In July, on his way to Paris, Guiteras called upon Mr. P. J. Freyer, the London surgeon,

and explained to that gentleman in detail the method used by Fuller and himself. A year later Freyer reported four cases in which he had operated by a "new" method (*Brit. Med. Journal*, July 20, 1901). In spite of protests from Fuller, and from such English surgeons as Mayo Robson, Freyer continued to claim priority for "his method," which was identical in every respect with the Fuller-Guiteras operation. As late as 1905 Mr. Freyer is quoted as referring to the procedure he employs as "my" operation (*Trans. Med. Soc. Lond.*, May 8, 1905), and the suprapubic operation perfected by Fuller and Guiteras is frequently spoken of as the Freyer method.

Perhaps the best summary of the whole question of Freyer's claims is that of Watson (Watson and Cunningham, *Diseases of the Genito-Urinary System*, Vol. I p. 342). We quote verbatim: "Mr. Freyer's claims have been so frequently shown to be without the least justification, that there is no need to refer to this part of his connection with the subject. He might appropriately, be described as a *universal usurper* of previously pre-empted prostatic privileges. Mr. Freyer has, in spite of this fact, done good service to the cause by establishing the suprapubic operation upon a more extended and better basis in England than it formerly occupied, or would have been likely to occupy for a good while, without his vigorous advocacy of its already well known, but little utilized advantages."

With all due respect, therefore, for Mr. Freyer's wonderful skill as an operator, for his wonderful success in obtaining a very low mortality with the method he uses in prostatectomy, we should like once more to call the attention of present-day writers to the fact that the credit for introducing the operation belongs to Fuller and to Guiteras.

Review of Current Urologic Literature

ZEITSCHRIFT FÜR UROLOGIE

Vol. IV., No. 4, 1910

1. Traumatic Hydronephroses and Pseudo-hydronephroses. By Hans Wildbolz, Berne.
2. The Casuistic of Hypertrophied Prostate. By Arthur Goetzel, Prague.
3. The Action of Prostato-toxin in Prostatitis and in Beginning Prostatic Hypertrophy. By Josef Sellei, Budapest.
4. A Combination of Casper's Operation and Catheterizing-Cystoscopes. By Walter Stark, Berlin.

1. TRAUMATIC HYDRONEPHROSES AND PSEUDO-HYDRONEPHROSES.—Wildbolz reports in detail a case of traumatic hydronephrosis in a man aged twenty-five, in whom nephrectomy was followed by recovery. In commenting upon this case he remarks that we have been in the dark for some time regarding the rôle of injuries in the causation of hydronephrosis. A number of cases have been reported some years ago, but they failed to convince because of insufficient data. Some authors denied the occurrence of a true traumatic hydronephrosis, while others regarded these cases as curiosities. The first authentic case was reported by Wagner in June, 1894, and this author analyzed the literature of these cases up to that time. Clinically it is impossible usually to determine the presence of a traumatic hydronephrosis. The collection of urine in the peri-renal and retro-peritoneal tissues often gives rise to a swelling which cannot be distinguished from true hydronephrosis, save at autopsy. Wagner collected ten authentic cases of true traumatic hydronephrosis. Ten years later Delbet enlarged this number to thirteen, but overlooked three cases which the present author reports in a brief manner. With the case reported in the present article, therefore, this makes seventeen such cases on record. In the case reported, the hydronephrosis was proved to be present at the operation.

Pseudo-hydronephroses are more frequent than true hydronephroses after injuries, and the author reports two such cases.

2. PROSTATIC HYPERTROPHY.—Goetzel reports his observations in 334 cases of prostatic hypertrophy. Regarding the etiology of this con-

dition, he does not think that the inflammatory causation of enlargement of the prostate will withstand critical examination. This theory was advanced by Ciechanowski and Rothschild, but the investigations of Casper, Runge, and others seem to have proved its worthlessness. Hypertrophied prostates are not so uncommon under the age of fifty as is generally supposed. Among the 334 cases there were 24, or about 7.2 per cent. who were under fifty years of age. The disease remains stationary for a number of years at the beginning, provided proper hygienic and dietetic measures be enforced. If the bladder wall is normal, and if the residual urine is not too large, the cystitis can be cured completely. If this is not the case, then the cystitis resists all treatment, even after the obstruction to the stream has been removed. The formation of calculi in the bladder is frequently noted as the result of the stagnation of residual urine in the bladder. For this reason the second stage of prostatic hypertrophy is so frequently associated with stone in the bladder. Stones were found with 71 per cent. of the author's cases. Patients who complain of severe gastric disturbances, thirst and frequency of urination, may always be suspected of suffering from prostatic obstruction in the third stage.

As regards treatment, Goetzel points out that the palliative operations are less and less frequently employed, since the adoption of Freyer's two-stage operation. The catheter is the greatest therapeutic measure in prostatic hypertrophy. The indications for operation are, in the first stage, frequently recurring, complete retention; difficulty in passing the catheter; or enlargement of the middle lobe with consecutive kinking of the ureter. In the second stage the indications are severe disturbances in spite of the use of the catheter; increase in the residuum; severe hemorrhage; stones which cannot be crushed; and the urgent desire of the patient to be relieved from catheter life. In the third stage the operation should be attempted only after the bladder has been completely emptied. The contra-indications of the operation are severe constitutional diseases, and insufficient renal function. The suprapubic operation will find a greater number of adherents, because it can be performed rapidly, and if desired can be done in two stages. The perineal operation should be observed for cases of small, sclerotic, or suppurated prostates, and in cases of suspected carcinoma. The relatively frequent occurrence of death after prostatectomy from pulmonary emboli should be noted. Of the 334 cases observed, 93 were operated upon, and only 37 of these were operated upon for the prostatic condition itself. Of these, 14 cases were treated with suprapubic prostatectomy, with one death from pulmonary embolus. The results were

good. In general, it may be said that in those cases in which the prostate is shown by the cystoscope to be enlarged towards the bladder, the suprapubic method should be adopted; while in those in which the prostate is enlarged predominantly towards the rectum, the perineal method should be chosen.

3. PROSTATO-TOXIN IN THE TREATMENT OF PROSTATITIS AND PROSTATIC HYPERTROPHY.—Sellei attempted to treat the prostate by injecting subcutaneously a certain quantity of the prostatic fluid taken from the same individual. This work was based upon the theory of cytotoxins, of which spermatotoxin has already been isolated by Metschnikoff. The idea is, that by injecting various animal cells into the organism, there are formed bodies specifically antagonistic to these cells, which exercise a toxic action upon the same cells in the tissues. These antibodies resemble in many respects the hemolysins, and are composed of amboceptor and complement. Furthermore, when an organism is immunized my means of cytotoxins, it manufactures anti-cytotoxins.

The existence of "auto-cytotoxins" is denied by some authors, yet Metschnikoff, London and Adler were able to manufacture a serum which killed the spermatozoa of an animal, by injecting into this animal some of its own semen. This seemed to prove that the cells of an animal may possess the properties of antigen, provided they be cells which do not take part in the general metabolism of the body.

This principle guided the author in his experimental work with prostate-cytotoxin. The first thing to be determined was what action prostatic cells produced when injected into human beings. The first experiments were made with an emulsion of the prostatic juice of a man, as well as with tablets of prostatic extract from pigs. Injections were given to rabbits in increasing doses, of an emulsion made from the tablets (Burroughs, Welcome & Co.). No harm came to the rabbits. The same was done with human emulsion, and absolutely negative results were obtained in the animals. Special attention was paid to the conditions of the kidneys and arteries in these animals, but no changes of any kind were found in autopsy.

The clinical experiments were as follows: In cases of prostatitis, prostaticorrhea, and prostatic hypertrophy, injections were given of a preparation of prostatic juice. The latter was obtained as follows: The urethra was first thoroughly washed out, a catheter was introduced into the bladder, and the latter was irrigated several times with boric acid solution. The catheter was then used for introducing 10 c. c. of physiologic salt solution into the bladder. The distal end of the catheter was closed. The prostate was vigorously massaged, without,

however, including the vesicles in the act of massaging, and the fluid was caught in a sterile bottle as it dripped from the catheter. The prostatic fluid thus obtained was examined microscopically, and then was also grown upon ascitic agar in order to determine the presence of bacteria. It was important to determine the quantity of the leucocytes and of the lecithin bodies in the prostatic fluid, because the dosage varied markedly according to the quantity of these factors. The prostatic fluid was centrifuged, decanted, the sediment weighed, and enough of the decanted fluid added to make a mixture of one part in ten; $\frac{1}{2}$ % of phenol was added, and the emulsion allowed to remain in the incubator for 38 hours. During this time autolysis of the cells and bacteria took place. As this ten per cent. emulsion was found to be very toxic, a one per cent. emulsion was later prepared in a similar manner.

Sellei reports the results of experimental work in 18 cases in which he used the emulsion of prostatic juice. The first group of these cases were examples of prostatitis following gonorrhea. Thus, in the first case, 0.25 c. c. of the 10 % preparation was injected into the forearm of the patient. On the same evening there was a marked rise of temperature and an intense local reaction, restlessness, headache and pain in the back, lasting for three days. Traces of albumin occurred in the urine. Twelve days later a smaller dose, 0.115 c. c. was injected, and again, a local as well as a general reaction were produced. Four days later a third injection was given in the same amount then gradually the dose was increased to 0.25 c.c. The result was striking. Within three weeks the prostatic inflammation had totally disappeared, the gland had become normal, and the urine in the two-glass test contained scarcely a trace of mucus after the fifth injection. Hence, a markedly beneficial effect had been obtained with the injection of the patient's own prostatic secretion, but the result was accompanied by a toxic reaction. In order to avoid this, subsequent cases were treated with a smaller dose, *i. e.*, with a 1 % emulsion, the doses beginning with $\frac{1}{2}$ c. c., and gradually increasing up to 2 c. c. In some cases auto-prostato-toxin was used, while in others the prostatic juice from another person was employed. From the study of these cases, it appeared that the prostatic emulsion acted only upon the prostate, and had no effect upon the urethritis. In addition to being an auto-toxin, the preparation was practically an auto-vaccine, for, with the prostatic juice, the bacteria that were present were also injected. In three cases of prostaticorrhea, the injections produced a cessation of that symptom. In five cases of prostatic hypertrophy, a reduction in the

size of the prostate was effected; or else the prostate became softer and the urinary symptoms were relieved. From his experiments the author concludes that this method is of value in the treatment of the early stages of prostatic hypertrophy. In four of the cases the treatment consisted, first, in injections of prostatic secretion from the same patient (auto-cytotoxin); then treatment was continued with prostatic secretion from a previously treated patient with prostatic hypertrophy. While the author realizes that the number of cases reported is small, he hopes to submit further data in the near future.

4. COMBINATION OF CASPER'S OPERATION—AND CATHETERIZING-CYSTOSCOPES.—Stark, assistant to Casper, publishes a description of a combined operating and catheterizing-cystoscope, which has been used in Casper's clinic for some time. Casper's operating-cystoscope is well-known. The modification introduced in the present instrument consists in the introduction of a canal in the instrument through which two catheters, No. 7, can be introduced. The direction of the catheters is controlled by means of Albarran's lever. In order to bring the catheters into the visual field, it was necessary to shorten the distance between the prism and the end of the lumen of the instrument. This distance is usually 1. c. m., so as to give the operative instruments a parallel direction with the beak and lamp. The distance is shortened by the insertion of a small filling-piece, which can be removed at will, and which is held by means of a spring. When the filling-piece has been removed, Albarran's lever extends flush up to the prism, just as is the case in catheterizing-cystoscopes of other makes. An arrangement, which enables one to bring the sheath of the ureteral catheter nearer to the prism, when desired, after the Albarran's lever has been set, is also a valuable feature. With the new cystoscope it is convenient to remove the instrument, while the catheters remain in the ureter. The instrument is made by Reiniger, Gebbert and Schall, Berlin.

A METHOD OF AMELIORATING RENAL COLIC.—Bransford Lewis (*Journal of the A. M. A.*, January 29, 1910) presents an interesting case in which he succeeded in relieving severe attacks of renal colic by the introduction of an anesthetic solution into the renal pelvis. The patient was a woman aged twenty-five, in whom radiographs had shown the presence of small stones in the bladder. The stones were removed through the cystoscope, but the renal colic recurred, and the woman was reduced to the use of large doses of morphine, which only gave relief for an hour or two. In this emergency the following method was applied:

The patient was placed on the cystoscopic table, a catheter was

passed to the right renal pelvis, and 1 per cent. solution of alypin was injected directly into the pelvis, 20 minims in amount. Within ten minutes the patient expressed herself as being greatly relieved; by fifteen minutes no pain remained. The catheter was withdrawn and she had the first good sleep she had obtained for several days or nights. On the following day the renal colic returned, but in somewhat lessened severity; nevertheless, in order to prevent a recurrence of the siege of pain that had formerly prevailed, the ureteral catheter was reintroduced and 1 per cent. alypin solution was again injected, 15 minims, promptly producing the same marked relief as on the previous day. This time, in order to avoid the necessity of repeated introduction of the ureteral catheter, it was allowed to remain in the ureter, held there by means of adhesive plaster, emerging from the urethra and draining into a sterile receptacle, between the legs. When pain threatened to recur, one of the nurses present would inject 10 minims of the alypin solution, which attained the desired result in every instance. After three days the crisis seemed to be over; the attacks ceased in their frequency and intensity; the catheter was withdrawn and all menacing conditions disappeared. In February, with a recurrence of the pelvic inflammation, the patient's consent to an operation was obtained; exploratory nephrotomy was carried out on the right side. The renal pelvis was found sharply inflamed and moderately dilated, but no foreign body or stone was found in it, and there was no obstruction to the passage of a catheter downward into the bladder (none had previously been discovered in passing the catheter upward along the same tract). The pelvis was drained by cigarette tube, the kidney being attached to the adjacent muscles. Recuperation was satisfactory, the urine cleared of infection and clouding, and the patient again was able to be about.

END RESULTS FOLLOWING OPERATION FOR PROSTATIC OBSTRUCTION.—C. H. Chetwood (*Medical Record*, April 23, 1910) discusses the end results of prostatectomy upon the basis of 100 operations for prostatic obstruction. It is important that the profession at large be enlightened as to the dangers, complications and permanent results of this operation. Generalities, flights of oratory, and exaggerated statements are of no value in this connection. The operation is a complete success only when the end result is satisfactory, yet a good end result is necessarily relative, and should be estimated according to conditions before the operation. The greater our experience becomes, the more we appreciate this point.

The 100 cases reviewed cover a period of 10 years, and reveal a change of ideas and practice with respect to the methods adopted in

operating. Most of the author's early operations were done by the galvano-cautery technique. Later, the cases were divided between this and perineal prostatectomy, according to indications. Still more recently cases have been divided between various methods of operation, including the suprapubic, which is undoubtedly the method of choice in some cases. All types of prostatic obstruction were represented. All deaths occurring within eight weeks after operation were included in the mortality, and the total number of deaths was eight among the 100 cases. Two of these deaths were in patients with cancer of the prostate, who were operated upon by the suprapubic method. The patients died within three weeks after the operation. One death occurred from pulmonary embolism, in a suprapubic prostatectomy during the third week following operation, when the patient was apparently convalescing and sitting up out of bed. Two deaths occurred from septic thrombosis; two from shock and severe hemorrhage after suprapubic prostatectomy; and one from renal insufficiency, following a galvano-cautery operation.

The mortality favors the perineal method, as compared with the suprapubic, but this remains to be worked out more carefully. As to final results, the author believes that cases of stenosis of the vesical orifice, and of prostatic obstruction of the collar, or bar, variety, which cannot be enucleated with the same facility as other types, are best treated by the galvano-cautery operation through a perineal opening. In one case, operated upon in 1901, the patient was in such poor general condition that prostatectomy could not be considered. He is alive to-day at the age of seventy-five, in good general health. Summarizing the results of the galvano-cautery cases, the author reports that, exclusive of the tuberculous cases, 85% have been cured, or much improved, and 15% only partially improved. This refers to the end result, many cases being traced up to the present day for a number of years. The end results of the perineal operation have been comparatively satisfactory, so far as function was concerned. In three cases recto-vesical fistula occurred, one of which was cancerous. In one case a simple perineal fistula was permanently cured by a slight operation. Orchitis occurred in about 10% in the perineal and the galvano-cautery cases, as well as in the suprapubic cases. Incontinence of urine did not occur in any case after suprapubic operation, except when the latter followed a previous perineal operation. A point of importance is the fact that some of our cases that terminate unfavorably drift to other surgeons and sometimes have the second operation performed.

Fully half a dozen cases of incontinence of urine were seen by the author during the past year, all of them operated upon by others by the perineal method.

On the whole, few operations in surgery can show better progress in the last decade than can that of prostatectomy, when its limitations and end results are fairly regarded.

A REVIEW OF PROSTATIC SURGERY.—B. R. Ricketts (New York *Medical Journal*, January 29, 1910) discusses in a historical summary the surgery of the prostate as it has developed since 1639, when the first operation was supposed to have been made upon this gland for hypertrophy. Ricketts traces the history of hypertrophy of the prostate into the earliest history of man. It is said that the uncivilized people, such as the Indian, the African negro, etc., do not suffer from hypertrophy of the prostate. The disease is probably the result of civilization, although its cause is not known. Among the causes are mentioned inflammatory infections, arteriosclerosis, etc. A number of writers believe in the infectious theory. The treatment of prostatic hypertrophy is purely surgical. The perineal method of prostatectomy is now perhaps the method of choice. The first operation of this kind was performed by Courvelaire in 1639. Suprapubic prostatectomy has now been done for twenty-three years, and has proved the method second in choice. Partial suprapubic prostatectomies were performed by Belfield in 1886, and by McGill in 1887. Freyer's series of 644 suprapubic operations is probably the most complete on record. There were only 39 deaths, or a mortality of 6.05%. The perineal method has been performed more frequently, and therefore experience with this method is greater. This may account partly for the lower mortality of the perineal method. The whole question seems to be one of drainage, which is best secured by the perineal route.

BOOK NOTICE

SERUM DIAGNOSIS OF SYPHILIS AND THE BUTYRIC ACID TEST.
—By Hidego Noguchi, M. D., M. Sc., Associate Member of the Rockefeller Institute for Medical Research. 14 illustrations. J. B. Lippincott Company, Philadelphia. Cloth Price, \$2.00.

In this valuable monograph, the author explains the principles underlying the serum reaction, and considers in detail the Wasserman reaction and his own modification of this test; a modification, which, on account of its comparative simplicity and availability should be better known than it is. A complete bibliography of the serum reaction—the test has an enormous literature—and a valuable glossary, add to the value of the book.

THE GENERAL PRACTITIONER'S DEPARTMENT

SYRINGES

The practitioner treating urinary diseases will require several of these. For general use, e. g. for irrigations of the urethra and the bladder, etc., he will in the first place need a large syringe holding about 150 c. c. (5 ounces), and known as the Guyon or Janet syringe.

The Guyon Irrigating Syringe. This consists of a graduated glass barrel with metal fittings and a rubber piston. The latter is made adjustable, so that it can be tightened or loosened at will, by

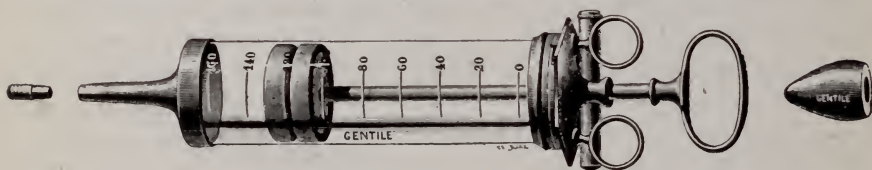


FIG. 11. Guyon Syringe.

turning a screw in the metal plate holding the piston. The piston can be removed and the two separate parts of the syringe boiled. The end is adapted for insertion into catheters, or into rubber tube connections. Nipples of rubber may be placed upon this end, when it is desired to irrigate the urethra without a catheter.

A somewhat smaller Guyon syringe, holding but 100 c. c., is made the advantage of which is that one can fill it with one hand, while using the other hand temporarily to steady the catheter, etc.

The Janet-Frank Syringe. This serves practically the same purpose as the Guyon Syringe described above so that only one of these varieties of syringes is required. The Janet syringe and its modifications are made either in metal, with sterilizable rubber piston, or with the same piston, but a glass barrel and nickelplated fittings. The latter is to be recommended as with it one sees better how much fluid goes into the bladder. The framework at the collar of the syringe offers a convenient hold for two fingers, while the thumb is inserted into the handle of the piston. This feature, however, is also provided in the Guyon syringe. The Janet syringe has a rounded distal end which tapers into a conical tip, adapted for catheters, rubber tubes or nipples.

This syringe, furthermore has graduations upon the piston-rod, and has an arrangement whereby this rod can be removed out of the frame, so that the syringe can be taken apart and boiled. The illustrations will show the features of these syringes better than a detailed description.

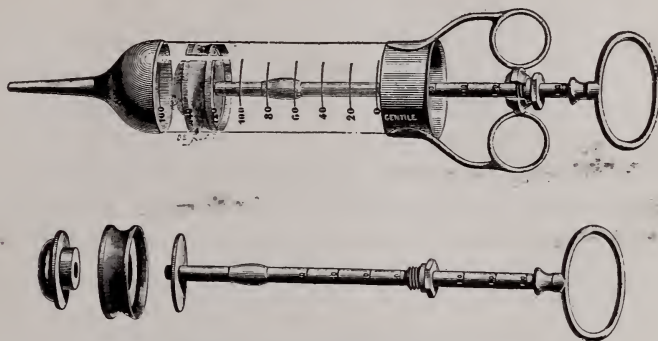


FIG. 12. Janet-Frank Syringe.

Urethral Syringes. As these are comparatively inexpensive, practitioners should have one or more syringes for the anterior urethra. These may be had of glass with asbestos packing. Physicians should not use cheap and unsatisfactory syringes commonly sold by druggists as urethral syringes. They are never in order, and do not last any length of time. A good urethral syringe for general purposes can be contrived with one of the so-called anti-toxin syringes. These hold 20 c. c. or more, and have a glass tip upon which rubber nipples can be fitted. This makes an excellent syringe for anterior urethral injections of the newer silver salts, etc. The barrel should be graduated, as it is often important to note in each case the quantity of the solution used. The piston, which is made of asbestos packing, with a glass rod, can be removed, and both piston and barrel should be boiled before using. Rubber nipples for these syringes can be obtained for a few cents each, and of course must be thoroughly boiled before each treatment.

For instillations of cocaine and injections of sterile oil, etc., where the sterility of the solution and of the syringe must be absolute, it is best to use a syringe holding 10 to 12 c. c. made with a conical glass barrel, shaped like the end of a cigar. The packing may be of asbestos or of sterilizable rubber.

Instillation Syringes. Of these there are two varieties, and the practitioner should possess one of each kind. Both are employed for the same purpose, namely for instilling small amounts (usually not over 20 drops) of strong concentrated solution directly into the posterior ure-

thra. This is accomplished, in one of the syringes to be described, through a metallic, curved cannula attached to a small syringe, while in the other variety the solution is instilled through a woven silk catheter.

The Ultzmann Syringe. This consists of a syringe holding about 25 minims, which fits with its tip into the funnel of a silver cannula. In the European syringes the original Ultzmann cannula has a funnel-shaped proximal end of hard rubber, cemented or screwed upon the silver tube. This arrangement is bound to give way in time with frequent boiling. In this country the most popular modification of the Ultzmann syringe is that of Keyes, known as the Keyes-Ultzmann syringe, which may be recommended to the practitioner as answering every purpose of an instillation syringe of this type. The Keyes-Ultzmann syringe screws into the proximal end of the cannula, and is, in fact, practically an old-fashioned hypodermic syringe. A useful fea-

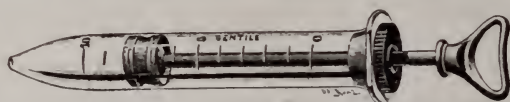


FIG. 13. Urethral Syringe for Anterior Injections.



FIG. 14. Guyon's Instillating Syringe, New Aseptic Pattern.

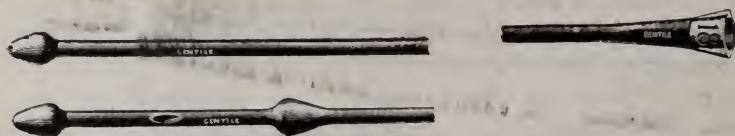


FIG. 15. Olive-pointed Instillation Catheters for Guyon's Syringe.

ture of the Keyes-Ultzmann instrument is the large lateral finger-grip provided between the syringe and the cannula, rendering the manipulation of this instrument very easy. The cannula should be marked at its proximal end with a nick showing the location of its curve. The tip of the cannula is perforated at its very end, and is smoothly finished, tapering slightly.



FIG. 16. Keyes-Ultzmann Syringe.

A disadvantage of the metal cannula in instillations is the fact

that patients with sensitive posterior urethra are subjected to considerable pain in the introduction of these instruments. Moreover, it is sometimes difficult for an inexperienced man to introduce the metallic cannula properly; and unless one has some experience in giving instillations, one is apt to inject the solution into the bulb of the urethra or into the bladder. Fig. 16.

The Guyon Instillating Syringe. This syringe is sold in this country practically in the original form in which it was devised. It consists of a glass barrel, cemented into fittings of hard rubber, a metal piston upon which are marked graduations in minims or in cubic centimeters, and which bears a leather packing, such as is employed in the old-fashioned hypodermic syringe. The piston cannot be removed, nor can the syringe be boiled. We must content ourselves with rinsing it out with a four-per cent. carbolic acid solution, and thoroughly scrubbing it with green soap and water. The piston bears upon its proximal end a nut which runs upon the screw thread provided along the entire length of the piston rod. This metal nut, which is provided with a knurled flange, in turn, screws upon the hard rubber head-piece of the syringe. In this manner, when the nut is screwed down upon the head-piece, the piston can advance through the syringe only by screwing its thread down through the nut, rotating the packing and expelling the contents drop by drop. When the nut is free from the head-piece, being screwed up on the piston as far as it will go, the piston is free to move through the barrel, the packing sliding along rapidly under the pressure of the thumb upon the piston head. In this manner instillations of larger quantities, up to 5 c.c. of solution, can be given with this syringe. The instrument therefore is adapted for both drop by drop and for more massive instillations. The tip of the Guyon syringe tapers slightly, and upon it fit couplings which taper still more, and which, unfortunately have a screw thread on the tapering portion. These couplings serve to connect the instillating syringe with the catheter through which the instillation is to be made.

The instillating catheter may be either an ordinary soft rubber, velvet-eyed catheter, about 12 French, or, as is the case in the original Guyon instrument, the catheter may be of woven silk, with an olivary point. The perforation may be either at the end of the olive, or in the shoulder of the olive, or else there may be an opening in the catheter a short distance above the olive. Sometimes a second olivary projection is provided upon the instillating catheter. Fig. 15.

The advantages in using olivary silk catheters are the ease with which these instruments can be introduced into the posterior urethra

with a minimum of pain, and particularly the facility with which we may know exactly where the end of the instrument is after it passes the cut-off muscle. The olive at the end of the catheter serves as a guide and may be felt to slip through the cut-off, into the posterior urethra, and if pushed further may be again engaged in the internal sphincter, and finally may be felt perfectly free in the bladder. After very little practice, one can give these instillations without fearing that the solution has not gone to the proper spot. A soft rubber catheter may be used with the instillating syringe, and has the advantage of being very gentle and comparatively painless; but it is not quite as convenient as the olivary instrument for localizing the end of the instillator.

Method of Keeping Syringes. The exact method of preserving the syringes described above varies according to the composition of these instruments. Syringes made entirely of glass should be kept in a weak solution of carbolic acid or bichloride. Special jars, with nickel supports for these syringes, can be obtained. Syringes made of metal

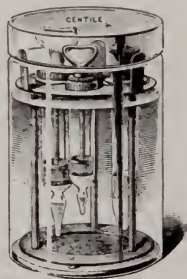


FIG. 17. Gentile's Jar for Keeping Syringes.

and glass should be carefully cleaned and thoroughly emptied after using, and a small amount of boric acid solution should be drawn into the barrel for the purpose of keeping the piston moist. If infrequently used, the rubber pistons dry out, and must be renewed. It is well to keep on hand one or two extra rubber pistons in case of accident to the original set. The metal-and-glass syringes should be kept in a dry place in the same manner as other metallic instruments. The hard rubber mounted syringe of Guyon is sold with a velvet lined case, which unfortunately cannot be kept aseptically; yet the only way to preserve these syringes is to keep them in these cases.

[Some of the French manufacturers have introduced recently aseptic instillating syringes, which are intended to take the place of the old Guyon syringe, vide Fig. 14.]

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ENTIRE ABSENCE OF KIDNEY, URETER AND BLOOD VESSELS

By J. N. VANDER VEER, M. D., Albany, N. Y.

A GENESIS, being of rather rare occurrence, I am induced to publish the following account of a case which came under my observation on the 23rd of January, 1910. The history is complete from the beginning up to and including the pathological specimen, a picture of which is presented herewith.

The patient was a man of 71, married, was born in the United States, being a resident of one of the New England States all his life. By occupation he was a stonecutter, which occupation he had followed ever since he was 20 years of age. For the last 30 years he has been a resident of the Adirondack region, and has not left that place for any considerable period of time. His mother lived to be 76, dying of dropsy, while his father died at 82 of some obscure bladder trouble, probably cystitis and pyelitis following an enlarged prostate. He has one brother and two sisters who are alive and younger than he. There is no history of cancer or any similar condition such as his case in the family, so far as he can remember. In fact, all that he remembers of the family history is that his mother had rheumatism in her younger days.

As for himself, he had the usual diseases of childhood, had scarlet fever when young and also in his early days had rheumatism for several years, but was never very sickly. In 1872, when the patient was 33 years old, he suffered from a

sunstroke, which incapacitated him for several days. There is no venereal history obtainable, and alcohol in the past 20 years is negative, but previously for some 15 years, or when he was from 26 to 35 years old, he used quite large quantities of whiskey. He is an inveterate smoker and also uses tobacco by chewing. The patient has never had any children, and has been married twice.

The history of the present time is that of a beginning difficulty in urination, with accompanying pain, in the Spring of 1909. With this there was also a whitish discharge from his penis. Defecation was somewhat impeded and he noticed that with the let up of the whitish discharge there ensued a continued cloudiness in the urine, which eventually turned to a reddish color and then he began to pass pure blood, with occasional clots. He had received no traumatism, nor had he ever had an instrument passed upon him and the condition came on in a purely spontaneous manner. He consulted his physician, who prescribed for him and the condition abated slightly, only to return in the course of a few months with renewed vigor. But the patient stated that during all this time he passed blood, or as he expressed it, "cloudy urine continuously." In the last few months he has lost rapidly in weight and his friends have remarked of a peculiar yellowish tint to his skin. His appetite has failed rapidly and he has been very susceptible during the winter to cold. Latterly he has been compelled to void every fifteen minutes during the night and day, and there is extreme strangury with the act.

The physical examination exhibited a man of 190 lbs., short and stockily built. Mucous membranes were somewhat pale. Pulse 84 and temperature normal. Heart negative. Lungs showed some emphysema, and there was a marked depression at the costal angle, which the patient says has always been there since he can remember. Abdomen negative, save for a rigidity over the bladder area, which is somewhat dull in this region. Kidneys not palpable. No ataxia. Reflexes normal. Rectal examination shows a very slight enlargement of the lateral lobes of the prostate, with a moderate amount of tenderness. Seminal vesicles apparently normal. Residual

urine in the bladder three ounces, decomposed; quantity for 24 hours 40 ounces; sp. gr. 1020, muddy pale amber color, alkaline reaction, $\frac{1}{2}$ per cent. albumin when filtered, no sugar, urea 0.02 grams; microscopically showing red blood cells in abundance, some mucus, leucocytes quite marked, granular débris, but no casts.

The patient was placed for 48 hours on styptol, one tablet every three hours, and it was suggested that he get out of doors as much as possible, bundling up well because of the cold weather, while he was catheterized and his bladder irrigated every eight hours. At the end of three days he complained of pain in his stomach, with repeated attacks of nausea, and absolutely no appetite. The urine did not seem to decrease in quantity, and at the end of the fourth day he developed a pyuria. The styptol was then cut down to one tablet every six hours and a purge was given of castor oil, together with a change in the solution of irrigation from potassium permanganate to a mild silver nitrate solution. This did not agree with him after the second irrigation and it was changed to boric acid, while a suppository of opium and belladonna, together with codeine by mouth, was given him. At the end of the sixth day he was apparently in good condition, temperature and pulse being normal, urine much improved.

On the sixth day he was cystoscoped and this showed an area of granulation tissue at the fundus of the bladder and also along the posterior wall, reaching down toward the ureteral openings. The trigone was in apparently good condition, save for a few small elevations, apparently edematous in character, somewhat reddened, more particularly on the left side. The ureteral opening was plainly discerned on the right side, but no ureteral opening could be found on the left, and I surmised that it was located within one of the small reddened patches, although I could not observe any urine exuding therefrom. There was a mild hemorrhage during the examination, and the catheter introduced into the apparent right ureteral opening seemed to penetrate satisfactorily, while urine in abundance and at the usual rate exuded therefrom. The bladder capacity was ten ounces. I did not deem it wise under the circumstances to

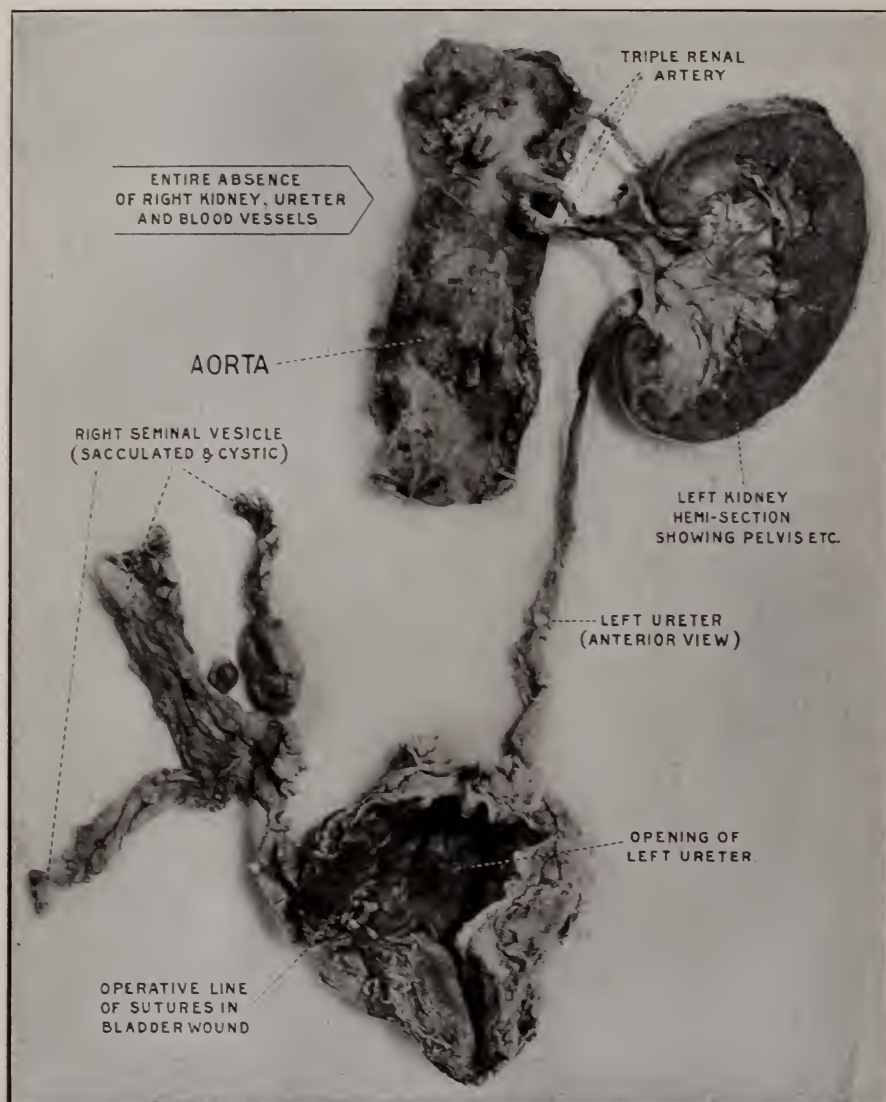
submit him to further manipulation and so did not use the phloridzin and indigo-carmin tests. In view of the previous urinary examination, and insomuch as some sort of surgical interference was deemed necessary to allay the hemorrhage, he was ordered for operation.

On the seventh day he was brought to the operating room, having a normal temperature and pulse, with normal excretion but marked hemorrhage, and his blood pressure registering at 140. Owing to his, as I considered it, precarious condition, due to his continued hemorrhage, I decided to do the operation under the hyoscin, morphine and cactin anesthesia, together with a small amount of chloroform, as usual in such cases in my experience. I made a suprapubic incision, freeing the peritoneum from the fundus of the bladder and packing off the space with tampons. Upon opening the bladder the air utilized in distension escaped readily and I then came upon a very marked granular appearance which clinically seemed to me to be that of carcinoma, there being infiltration of the bladder wall, with thickening and inflammatory reaction of the surrounding tissues. The patient was doing well under the anesthetic, and not being in a position to have a section examined immediately with the freezing microtome, I decided to extirpate that portion which seemed to be involved, I wondered at the non-appearance of urine from the left side, and instituted a search for it lasting some fifteen minutes, but could not locate one and surmised that it might be deep in the pelvis and emptying somewhat abnormally into the bladder. Feeling sure that there was one on the right side which was doing its work satisfactorily, which I could locate coming down in the normal way (although approaching the bladder somewhat more toward the midline than usual), I proceeded to extirpate the major portion of the fundus and also part of the posterior wall. The operation proceeded satisfactorily and the patient was returned to bed in very good condition. He rallied nicely from the anesthetic some six hours later, though showing somewhat of an irregular and rather weak pulse, but absorbed his rectal irrigation and infusion very readily. Owing to his complaining of pain in the bladder, his retaining catheter, which had been placed

therein, was irrigated with an ounce of boric acid solution, and the flow which came back was only moderately blood-tinged. At midnight he seemed to be in excellent condition, while at four in the morning he complained of severe pain in the bladder, when another gentle irrigation was made, but at eight in the morning he went into a state of semi-coma, with very shallow respirations, and died at 9:50, some 20 hours after the operation, apparently of a sudden edema of the lungs.

Of the autopsy, as done by Dr. Ordway, of the Bender Laboratory, I give only those facts which are of pertinent interest to the case.

On opening the peritoneal cavity a stomach markedly distended with gas was encountered, extending to the umbilicus. The peritoneum covering the floor of the pelvis was suffused moderately with blood and showed numerous ecchymoses at the points where it had been freed from the bladder. It was free from the bladder entirely and between the two there was a small amount of bloody fluid. The bladder was very small. Peritoneal cavity was normally smooth, moist and glistening and showed no evidence of infection. The next point of interest was the heart, in which the myocardium was somewhat pale and slightly friable, with a yellowish cast. Otherwise normal. Lungs were collapsed, crepitant throughout and showed no areas of consolidation. Size and weight of liver, as estimated, were considerably less than normal. The surface was distinctly and coarsely granular in consistency, firmer than normal. The surface, on section, had a coarsely mottled, yellow to brownish red color. The gall-bladder was markedly distended, with dark greenish viscid fluid exuding into the ampulla and the duodenum. Pancreas was of a pale yellowish color and lobulations were distinctly seen. Size and weight of spleen were smaller than normal, by estimation. Capsule was markedly and irregularly thickened, particularly over the outer surface, where the thickening varied from from 2 to 4 mm. The thickened area had a distinct yellowish color and was of firm consistency. There were no areas of calcification. On section the trabeculae were plainly evident. The gastro-intestinal tract contained nothing of interest save that the large in-



testine had considerable muco-sanguinous material and in scattered areas there was a marked congestion of the mucosa, with occasional ecchymoses.

Kidneys: *The left kidney* was slightly larger than normal. On section the pelvis and calices were found dilated, of a reddened granular appearance and contained a sanguino-purulent material. There were two arteries leading from the aorta in the normal situation to the left kidney, which entered at the superior and middle poles. That which entered at the middle pole bifurcated about one inch over the aorta and gave off a branch to the inferior pole. *The right kidney, as well as the right ureter and renal vessels, were absent.* The left ureter was considerably hypertrophied and the walls thickened.

Bladder: The right upper portion of the bladder was removed, leaving a viscus of about $\frac{1}{2}$ to $\frac{2}{3}$ of the normal size. On the superior right side was an incised wound through the bladder wall. It was firmly sutured with catgut. The edges were swollen and the mucous surface showed evidence of inflammation. The wound showed no evidence of repair, but was held firmly by the sutures. The opening of the left ureter was distinct. The right "arm" of the trigonum was not apparent and no evidence of a right ureteral opening could be found.

Seminal Vesicles: On the right side was a large elongated irregularly saculated structure, the longest branches being 15 cm. Many of the "arms" had bulbous ends and were distended with about 15 c.c. of a brownish, slightly viscid fluid resembling thin fecal material, but without any characteristic or distinct odor. Proximally this occupied the position of the right seminal vesicle and no other evidence of this structure could be found. They did not seem to communicate freely with the ejaculatory ducts, and further examination showed that there were two well marked ejaculatory ducts.

Testicles: The left testicle showed the tubules stringing out freely and the consistency was somewhat increased.

Anatomical diagnosis showed:

Atelectasis of the lungs.

A recent incised wound of abdominal wall.

Sub-intraperitoneal ecchymoses.

Absence of right kidney, right ureter and right renal vessels.

Anomaly and cysts of right seminal vesicle.

Recent incised wound of bladder wall.

Acute and chronic cystitis.

Acute and chronic pyelitis.

Acute and chronic ureteritis.

Several days later the pathological reports were submitted, which showed the sterile urine withdrawn from the bladder gave smears of a Gram negative bacillus, while the cultures showed a staphylococcus. Of the portion which had been removed from the bladder wall, the anatomical examination showed marked chronic cystitis, granulation tissue replacing mucosa; showing diffusion of blood; perivascular chronic inflammation, and endarteritis.

28 EAGLE STREET.

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THE SURGICAL ASPECT OF THE ABNORMALLY MOBILE KIDNEY *

By OLIVER C. SMITH, M. D., Hartford, Conn.

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THE history and perfection of the operation of nephropexy are closely connected with members of this Society; in fact one of the most valuable contributions to the literature on this subject, both from a historical and technical standpoint, was made by the founder of the Society, Dr. Ramon Guiteras, in a paper entitled, "The Technique of Nephropexy, with Special Reference to a Method of Attaching the Kidney as Nearly as Possible in its Normal Position," read before the Rhode Island Medical Society in December, 1902.

Since the operation was first introduced by Hahn in 1881, there has been and there still is a wide divergence of opinion as to its indications, and with a number there has been a question as to the wisdom and desirability of operating upon these cases at all. It is true that the earlier operations were not, as

* Read before the American Urological Association, New York Society.

a rule, a success, even in the hands of expert surgeons. Kidneys which were anchored by sutures passed through the fatty capsule or through the fibrous capsule without any decortication of the kidney were very prone to relapse.

The name "Movable Kidney," under which this subject is usually treated, is misleading. All kidneys are normally movable as shown by the investigations of Israel, Litten and others, ascending with expiration and descending with inspiration from one to two inches, the range of excursion being considerably greater in the female than in the male. The right kidney is normally an inch or less lower than the left, being situated on a level with the lower border, and the left with the upper border of the eleventh rib.

For convenience of description the amount of mobility is divided into three degrees; first, where the kidney descends so that its lower pole can be palpated; second, where it descends sufficiently to allow both hands to grasp the kidney; and third, where the entire kidney comes below the chondral margin and can be held in the hands. This condition is denominated then as movable kidney in the first, second, or third degree. The term "floating kidney" has been applied to this condition, but anatomically should be confined to the kidney possessed of a peritoneal attachment, or mesonephron.

The frequency of this condition in the human species is variously estimated as occurring in the male in from $1\frac{1}{2}$ to 3% of individuals, and in the female from 10 to 25%. Noble¹ states that it occurs in 25% of women subject to gynecological diseases, and numbers of observers who have taken occasion to examine a large series of women who come for various purposes find the right kidney preternaturally mobile in about the proportion above stated, and in the right kidney it occurs fifteen times more frequently than in the left.

Definite statistics as to the proportion of individuals possessed of abnormally mobile kidneys requiring nephropexy are not obtainable. Probably the majority of these individuals do not suffer from symptoms due to this condition. It is a fact acknowledged by all that the movable kidney is very frequently associated with neurasthenia. Osler and Atlee have pointed

out the danger of acquainting neurasthenic women with the fact that they have movable kidneys, lest it may increase their nervousness and provide them with another ill to which they attribute various ailments and ill feelings. If the neurasthenic woman is not conscious of a movable kidney it were better for the examiner to tell someone of the family than to startle the patient with the intelligence. One is probably not justified in performing nephropexy in the hope of curing neurasthenia, and yet in a good percentage of cases where the operation is performed because of tangible symptoms the condition of nervous system is certainly improved, not usually immediately, but gradually, and often with lasting benefit. While it is true that a number of women, upon whom the right kidney may be palpated in the third degree of ptosis, do not complain of the characteristic symptoms calling for operation, it is also true that in a smaller percentage of cases there may be found a train of symptoms distinctly referable to the condition. Dietl's crisis is the most pronounced and striking indication for operation, but unmistakable Dietl's crisis is far from common in these cases. It is most reasonable to conclude that an organ of the firmness and size of the kidney which comes downward and forward out of the loin and causes by its presence pressure upon the duodenum, colon, and the vessels and nerves supplying the viscera cannot but have some direct or reflex influence. Naturally, the temperament of the patient is largely responsible for the varying degree of effect so produced. The sensation of dragging and weight in the loin is accounted for by the tugging upon the renal vessels and nerves. With these symptoms in evidence and the patient conscious of a mass presenting in the lateral abdominal region or in the pelvis itself, nothing can be more rational than that the nervous system should be disturbed, and while we desire to avoid operating upon hysterical and highly neurotic individuals, we are not invariably excused from endeavoring to remove such a marked source of irritation as the well ptosed kidney must be. The writer believes it is fair to state with our present knowledge of the results following the operation, that in well marked cases of prolapsed kidney, whether accompanied by more or less general enteroptosis or

not, if there are present symptoms which may be caused by such a kidney, in a patient possessing no contraindication to operation, that one is entirely justified in performing an operation as devoid of danger as that of nephropexy, the mortality in a series of 1000 cases collected by Watson² being 1.3%.

In deciding for or against the operation of nephropexy in a given case it is one's duty to consider carefully all the facts both pro and con, to make an unusually thorough physical examination, which shall include the secretions, the condition of the nervous system, as well as a careful examination of the kidney and its surroundings. One must be thoroughly conscientious in his examination and advice and never jump at a conclusion that because a kidney can be palpated it should be anchored, or that vague symptoms, however disturbing, must of necessity be due to this palpable lesion. It is well, before attempting the operation, especially with hypercritical and neurasthenic individuals, to be supported by counsel.

We believe that this condition is not usually sufficiently investigated by the general practitioner and that cases referred for nephropexy are frequently not suitable for the operation, although the intention of their medical advisers was of the best, and that more cases of nephroptosis with very evident attendant symptoms are overlooked or advised to have nothing done.

If operation is decided upon which of the various procedures shall we select? The types of operations which have been employed may be grouped as follows:

Those which depend upon suturing of the fatty capsule to the abdominal wall, (Hahn).³

Or upon sutures passing through the fibrous capsule and fatty capsule, (Hahn, suggested by Bassim).⁴

Sutures passing through the cortex and fibrous capsule without decapsulation, (Delhaes,⁵ Newman,⁶ Küster,⁷ Albarran,⁸ and others).

Sutures which include only the fibrous capsule without decapsulation.

The introduction of foreign material, gauze packing, and

gauze slings, for the production of granulation and adhesions, (Senn,⁹ Deaver,¹⁰ and others).

By the suturing of the fibrous capsule to the twelfth rib, (Ceccherelli.)¹¹

A method of endeavoring to support the kidney by building up a shelf, as it were, practised by the Mayos.

And partial decapsulation, employing the scroll edge of the fibrous capsule for the introduction of sutures attached to the abdominal parietes, (H. Morris,¹² Edebohls,¹³ Guiteras, and others).

Of the first three types of operation, where decortication has not been practised and adhesions not invited, relapses were the rule.

The method of introducing gauze to form adhesions, while effective, was necessarily more tedious and more distressing to the patient, besides introducing a chance of infection.

Sutures which include the parenchyma may, it is believed, do damage to the kidney substance, provoke hemorrhage, invite sinuses, and furnish nuclei for stones.

The great admiration which the author has for the work of the Mayos leads him to feel that the method which they suggest is worthy of trial.

The method which has appealed most strongly to the author, and the one which he has used in the series to be referred to later, is that of partial decortication after complete or partial delivery of the kidney onto the loin through an oblique lumbar incision, the patient being placed in the semiprone position with Edebohls' pillow placed transversely across the table making pressure below the hypochondrium to increase the space between the ilium and the twelfth rib. The adjustable apparatus of Cunningham or the attachments which now go with operating tables answer the same purpose. The incision commences just below the twelfth rib, at the outer border of the erector spinae muscle, downward and outward, approaching the crest of the ilium somewhat to the outer side of its center. This incision exposes the superior lumbar triangle, the boundaries of which are the posterior margin of the oblique muscles of the abdominal wall, the quadratus lumborum, and

the twelfth rib. The latissimus dorsi is exposed in this incision, its fibers separated, and the aponeurosis of the oblique muscle exposed. The ilio-hypogastric and ilio-inguinal nerves, which are to be found at the inner side of the incision approaching it at its lower end, should be avoided and neither cut nor included between ligatures. The aponeurosis is penetrated with a forcep and the kidney fat exposed. The kidney is palpated as it is drawn up by the fat, its size, contour, and surface determined, when one can decide if it is feasible and safe to deliver it. If not delivered completely the capsule may be split over the convex border and turned back with the kidney still below the level of the abdominal walls. Dr. Guiteras separates the capsule on the posterior wall only, in our work we have also decorticated the anterior wall sufficiently far to give us a scroll edge for needed strength in suturing. Portions of the fatty capsule which would come between the decorticated renal tissue and the muscle to which the kidney is sutured are removed. In our early work sutures were of chromasized catgut. Two experiences of staphylococcus infection, which apparently came from the catgut, induced us to change our suture material to celluloid linen, since which time we have had no suppuration, and the non-absorbable sutures have made no trouble. Four sutures, armed with round, curved, taper-point needles, are introduced after the method of Broedel or Goelet, two on either side, employing the rolled edge of the capsule. The kidney is then carried by the hand against the lower pole into as nearly normal position as it is feasible to place it and maintain it. Each suture, with its needle, which has been fastened separately to the towels surrounding the field, is now passed through the muscles and fascia of the parietal wall and the ends of each suture tied together vertically. If there is considerable oozing from the kidney, as usually happens, hot gauze packing is employed for a few moments until the field is dry. The muscles and fascia are closed with interrupted sutures and the lower angle of the incision drained with a piece of twisted rubber tissue. The fat is closed separately to eliminate air space and the skin with interrupted sutures to allow vent for serious oozing.

This is nearly the technique recommended by Dr. Guiteras

in his article above referred to, and is the type of operation,—allowing for various minor modifications, which, I believe, is considered by the majority of operators to be the most safe and successful at the present time. In careful hands the dangers are trifling, the possibility of injuring the renal vessels must be remembered, and too much tension in delivering the kidney should not be employed. This is where the chief danger in the technique lies. Rotation of the kidney upon its long axis must be avoided for fear of constricting the ureter. Damage to the renal parenchyma in manipulating the kidney and decorticating must be carefully avoided and strict asepsis maintained, for the wound is deep and an infection prolongs convalescence and increases the suffering, which in a successful case is very slight. These patients are kept in bed three weeks, the last week of which time they are allowed to have a back rest. As a rule the convalescence is smooth and comfortable.

As has been stated the operative mortality is as low as can be hoped for in any elective operation which deals with an important viscus and entails a deep incision. With due caution and the proper selection of the subjects for operation the procedure should be practically devoid of accidents or fatalities.

While it is true that a few years ago the operation was in ill repute as to its permanency, with a more perfect technique the ultimate results as shown from various series of cases are good. From a series of 253 cases collected by Watson and Cunningham, in 158 of which results were noted at periods of from 1 to 15 years, 132 are reported as cured, 18 as greatly improved, and 8 unrelieved.

The writer's experience is as follows: 35 nephropexies have been performed upon 35 women. There have been no bilateral operations, nor any male cases. The average age of these patients is $30\frac{1}{2}$ years. In 33 cases the ptosis was of the third degree, in 2 of the second degree. Complicating conditions in the kidney encountered; nephrolithiasis 1, hypernephroma 1, retention cyst of the kidney 1, this occurring upon the left side, the right kidney of the same individual being anchored for a displacement to the third degree. In addition to the complications mentioned, 25 of these cases were compli-

cated with other conditions, as follows: chronic appendicitis, for which appendectomy was done at the time of nephropexy 18, 6 of the appendectomies having been performed through the lumbar incision and the balance through a second incision in the abdomen, chronic appendicitis with cystic ovaries 2, with operation, cholelithiasis 1, Meckel's diverticulum, both operated. 2 patients suffered from staphylococcus infection, probably due to catgut. Collections of serum in the fat layer occurred in three cases without delaying the convalescence. 1 case was followed by post-operative lobar pneumonia. There were no fatalities. The average length of time since operation is $2\frac{1}{2}$ years. In 2 patients there occurred a relapse, but in neither to the same degree as before the operation. In 3 patients who did not gain flesh following the operation at the end of from 1 to 3 years the kidney was found somewhat lower than when anchored, but the mobility in each instance was diminished. In the remaining 30 cases, while the lower pole of the kidney in all can be palpated and does not recede with expiration to its normal limit, the preternatural descent has remained controlled. With the great majority of these patients the results have been gratifying, there has been a gain in weight and an improvement in general condition, in some instances marked lessening of neurasthenic symptoms.

CONCLUSIONS:

That the operation as now performed is established upon correct principles.

That in careful hands it is comparatively safe, with results furnished by a considerable number of operators ranging from moderately to highly successful.

That while we were at first sceptical as to the value or permanency of the operation, except in cases presenting the severest type of symptoms, we have become convinced that in the large majority of instances the results upon the general as well as the local condition of the patients are gratifying and satisfactory.

And that the American surgeon is to be felicitated for his

share in the advancement and the knowledge, technique and success of this operation.

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5. *Bassini*, "Un Caso de René Mobile Fissato col Mezzo Dell Operazione Cruenta." Annali univ. di med. chir., September, 1882.
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13. *Morris*, Medical Record, 1901, lix. 284.
14. *Edebohls*, Annals of Surgery, February, 1902.

44 HIGH STREET, HARTFORD, CONN.

A PRELIMINARY REPORT ON BACTERIN THERAPY IN URETHRAL AND PROSTATIC INFECTIONS

By ERNEST G. MARK, A. B., M. D., Kansas City, Mo.

IN presenting this resumé of his work in Bacterin Therapy as applied to infections of the urogenital tract, the author is keenly aware of certain shortcomings in technique. A review of the literature shows a wide variation in the results of practically all observers, and this uncertainty of action has followed the work of the writer. No tangible or logical reason for this variability has been advanced, and we confess in advance, that we have no theory to offer. The author hopes that as much knowledge may be gained from the failures as from the successes. Certain it is that the proportion of successes has been greater than the failures—so much so, that we venture to hope that improvements in technique may, in the future, afford us a well-grounded and definite therapy.

About seventy-five cases have been observed by us. Some of these cases are not recorded in this report, on account of lack of opportunity for careful observation. In all of the recorded cases, the bacterins have been autogenous ones. Stock bacterins have been used by the author, but the unreliability of such bacterins has led to their abandonment.

In the use of the autogenous bacterins we have found it frequently necessary to discard one series of bacterins and to prepare fresh cultures. This necessity has arisen in about $33\frac{1}{3}$ per cent. of our work. Extreme under-dosage and absolutely negative results have been the bases for such action.

Selection of Cases: Most of the work done has been in infections of the male urethra and annexa. One case of marked persistent cystitis due to the bacillus coli communis has been observed. In this case, bacterin therapy was followed by a rapid complete cure, a result entirely at variance with the observations of other writers.

In the selection of cases we have considered that the ordinary therapeutic measures offered less hope of cure in the semi-

chronic and chronic infections, and it is in this class of infections that bacterin therapy has been utilized. In only two cases were the symptoms acute in character and in both of these cases the results were peculiarly striking and successful.

A brief report of the cases treated by means of bacterin therapy follows:

Number of cases observed accurately, 57. Of this number 49 had antero-posterior involvement. In one only was the anterior urethra alone involved, and in four cases, the posterior urethra was the infected portion. The bladder alone was the seat of infection in one case (bacillus coli infection) and the vesicles in one. There was one prostatic abscess.

Of this number of cases, forty have been cured so far as can be determined by all methods of clinical investigation, five have been markedly improved and in twelve no result has been noticed.

Culture Media and Planting of Culture:—For culture media we have used hydrocele agar, ascitic agar and nutrient agar over the surface of which has been smeared a thin film of sterile blood, and Loeffler's blood-serum. The latter medium, has, in our hands, proved by far the most satisfactory one.

In making cultures of the infectious secretions every precaution has been made use of. In every case thorough clinical diagnosis has been insisted upon, and the infectious material secured from the site of infection.

In no case has an intermediate agent been used for carrying the infected secretion other than the platinum loop. In other words, the transfer has been made directly from the patient to the culture media, under rigid aseptic precautions.

If the anterior urethra alone was involved, which seldom proved to be the case, the material secured by stripping after thorough cleansing of the glans and meatus was used for planting.

In prostatic and vesicular infections, massage and stripping were employed to secure the material for making a plant. In all of our later work, smears have been made for thorough microscopical study. In these smears have been found in order of frequency: (1) a bacillus smaller than the diphtheria ba-

cillus but staining in a similar manner, Gram positive and growing in extremely small colonies resembling gonococcic colonies; (2) staphylococcus albus and aureus, gonococci, a slender bacillus resembling the Koch-Weeks bacillus and staphylococci of several different species. In one case, the bacillus capsulatis mucosa was found.

Preparation of Bacterins:—The bacterins have been prepared in the usual manner by washing off the surface of the growth with physiologic salt solution, and heating to 60° for one hour. Each dose of bacterin has been placed in small test tubes and the tubes sealed by heat, thus offering a sterile and convenient method of keeping the bacterins. If it were possible to accurately gauge the dosage for each individual before administration, this method would be excellent, but unfortunately there has been such a wide variation in dosage that we have abandoned the method as impractical.

Dosage:—Determination of dosage has, in a measure, depended upon the organism present, but more upon the individual, so that it is impossible to fix any standard for initial dosage. We have endeavored to establish the minimum dosage from which characteristic reaction is obtained, and utilizing this point as a standard, progressively increasing the dosage.

Administration:—The bacterins have been injected subcutaneously, the arms and abdomen being the sites usually selected for injection. The interval between injections has depended upon reaction, varying from three days to one week.

Results:—While our results have not been uniformly good, they have, however, been sufficiently convincing of the efficacy of bacterin therapy. The failures we feel must be attributed to faulty technique, but wherein the fault lies, we are unable to state. The large percentage of successes cannot be deemed accidental, and the procedure must be accorded a permanent place in our therapy. It seems beyond question that bacterin therapy is the most valuable adjunct that modern science has contributed to the treatment of diseases of the urogenital tract.

Based upon our own work and observation of the work of other investigators, we have come to the following conclusions:

1st:—Autogenous bacterins should be used whenever possible. On account of the great uncertainty of culturing the gonococcus, it will suffice to use a stock culture prepared from a reliable strain. In using a stock culture, frequent replants should be made. Occasional examinations should be made to determine if the organism is still Gram negative. If not Gram negative, the cultures should be rejected.

2nd:—In all mixed infections, the different organisms should be isolated and replanted in flasks, affording a wide surface for growth. From these segregated colonies, the bacterins should be prepared in the usual manner with physiological salt solution.

3rd:—The bacterins should now be rendered sterile by heat. The degree of heat used and the duration of heating should depend upon the organism being worked with.

4th:—The sealed tube containing the bacterin should now be shaken thoroughly for one hour, in order to thoroughly break up the clumps of bacteria.

5th:—The bacterin should be standardized carefully and preserved in one per cent. lysol solution in a rubber-capped bottle.

6th:—The bacterin should not be used until it has been demonstrated by replanting from the mother emulsion that all of the organisms have been killed.

7th:—Where a mixed infection is present we have found it perfectly satisfactory to mix the bacterins, making a mixed bacterin.

In all the instances in the author's work in bacterin therapy, the bacterins have been prepared by Dr. Frank J. Hall, to whom the author wishes to express his great indebtedness for many valuable suggestions in the preparation of this paper.

ANASTOMOSIS OF THE VAS: TIME FOLLOWING OPERATION NECESSARY FOR SUCCESSFUL ISSUE ¹

By GEORGE KNOWLES SWINBURNE, M. D., New York City.

IN this operation worked out by Dr. Martin, which in many cases promises to be of great value, I had one experience which seemed worthy of publishing, and that was with reference to the time which elapsed following the operation, before the canal seemed to become patent enough for the spermatozoa to make their appearance in the seminal fluid.

B. O., came to me in the spring of 1908. He had been married four years; had no children. Six years before he had a gonorrhea which was followed by a double epididymitis.

On examination I found that he had a chronic prostatitis which had to be treated, and also the verumontanum was affected. All this took considerable time to cure before suggesting the operation of anastomosis of the vas. When he seemed recovered as far as I could improve him, a specimen of the spermatic fluid showed that there were no spermatozoa, although there was but a very slight nodule in the tail of each epididymis. A hypodermic needle plunged into each testicle brought motile, active spermatozoa and I told him I thought it was a favorable case for an operation. This was performed in the latter part of 1908. Operation was followed by a slight thickening about the site of the anastomosis, but a specimen of the semen five months after the operation showed no spermatozoa and at the time I thought that the operation was a failure. I suggested that he could have the other side operated upon, but advised him to go to Philadelphia and consult Dr. Martin before having anything done. This he did in June, 1909. Dr. Martin's advice was that he should wait six months at least before doing anything.

In February of this year, he came to me with a specimen which showed numerous live spermatozoa without any treat-

¹ Read before the Association of Genito-Urinary Surgeons, Washington, D. C., May 3rd, 1910.

ment having been instituted in the meantime, showing that the thickening about the site of the operation had absorbed and that there was now a right of way. Not only were the spermatozoa motile, but they traveled forward in a lively manner. As yet I have heard nothing as to the ultimate success of the operation, but can see no reason why it should not be successful.

I have performed the operation now on four others, and in one of these, a test before the operation, of plunging a hypodermic needle into the testicle showed a very few spermatozoa. The patient was very anxious to have an operation done and I agreed to do it, but at the time of operation found that the vas on each side was nothing but a cord; there was no lumen, and the operation was called off.

In the first case I made no test, simply did the operation. The man had had an epididymitis seventeen years before, had been married twice, had no children, and desired to have them if possible. I advised trying the operation first on one side, and waiting to see whether that would be successful before doing another.

Cutting down the testicle in the manner described by Martin, on trying to find some point in the testicle where I could find spermatozoa, I could find none, but I made an anastomosis, and only saw the patient one month after the operation, but I believe the operation was not a success.

The third and fourth cases operated on by me showed no spermatozoa. The last case was operated on November 10th, Patient had double epididymitis six years ago; with the hypodermic needle I found a few stray spermatozoa. Here again, I held out no hopes, as to the success of the operation, but he was willing to run the chances.

On cutting down the testicle, the point at which I made an anastomosis at the time of operation, I could find no spermatozoa, but completed the operation which was successful so far as the operation was concerned, but have no great hopes for that case, so that out of five cases operated only one of them gave real promise of success.

In connection with this, a physician consulted me before I ever attempted the operation, and I sent him to Dr. Martin

who performed it. Three days after the operation he returned to the city, and five days after that I was called to his house and found him suffering with extreme swelling of the entire testicle, great inflammation and pain. He was in bed for some time and I supposed that the operation would certainly be unsuccessful. I lost sight of the patient until last fall, at least three years after the operation, when he told me that after his recovery, his wife became pregnant and carried a child for some six or seven months; had a miscarriage and unfortunately the child either was not viable or died shortly after birth. Since then there has been no pregnancy but he told me that he had had his semen examined, with the report that there were numerous motile spermatozoa, but they seemed to have no forward movement; that they simply went round in a circle, seemingly unable to get anywhere and he wanted to know whether this was significant and whether anything could be done to cure it. I found he had a congested posterior urethra and made two or three applications to the deep urethra through the urethroscope, but have since lost sight of him.

The object of this paper is to show that it takes considerable time after the operation for the patency of the duct to become established. And, second, that even though the operation may be followed by severe inflammation yet it is not necessarily unsuccessful.

64 E. 56TH ST., N. Y.

HEMORRHAGES FROM THE MALE URETHRA *

By A. RAVOGLI, M. D., Cincinnati, O.

SEVERAL cases of hemorrhage from the urethra, which have occurred in my practice, have prompted me to the selection of this theme. All these cases of hemorrhages from the urethra have to be referred to the class of traumatisms. They have been produced mostly by the use of instruments in the treatment of organic strictures. In my cases extravasation of blood under the skin of the penis has never taken place, as in the case reported by Seifert.¹ The distressing symptom in our cases was the flowing of the blood from the urethra in an alarming quantity after the slightest and most gently directed application. None of our patients belonged to hemophillic families, like in the case of Wrede.²

It is clear that any injury in the penis causing rupture of the urethra is the cause of a hemorrhage. It is my purpose to point out cases of very severe hemorrhages from the urethra following the slightest and the most gentle manœuvre in treating strictures of the urethra. Hemorrhages can be avoided by the careful use of the instruments, but in some cases they cannot be prevented. When the mucosa of the urethra or of the bladder is thick and inflamed it is, according to Zuckerkandl,³ much more vulnerable and any instrumental exploration may cause hemorrhages. Where soft and succulent granulation tissue has been formed, the introduction of a sound in the gentlest way is liable to produce hemorrhage.

A few drops of blood after the introduction of a sound are of little significance, as after withdrawing the instrument the blood stops. In some cases, however, the hemorrhage is so severe as to frighten the patient and also the physician.

When the hemorrhage comes from the urethra in the pars pendula a well applied compression with a bandage around the penis will soon stop the bleeding. When the hemorrhage has its origin from the posterior urethra, usually in the bulbar

* Read before the American Urological Association, June 6, 1910.

region, then it is not so easy to master the bleeding, except by digital compression.

We had a case of persistent hemorrhage after dilatation performed with Kollmann's dilator for the posterior urethra. J. N., a strong young man was troubled with a stricture in the pars membranosa. A steel sound No. 12 American, could be introduced without difficulty, yet the stream of the urine came distorted, or divided, drops of urine remained inside, causing discomfort, and a dribbling sensation. The Kollmann posterior dilator was applied without cocaine instillation, in order to have the sensitiveness of the patient as a guide. The dilator was opened to No. 35, when the patient declared to have a kind of burning feeling. The instrument was kept for two minutes, then closed and removed. The instrument showed some blood on the rubber cover. The patient did not complain of any pain, and the urethra was irrigated with 1 to 5000 solution of permanganate. After the solution was expelled some pieces of clotted blood came out. Although the patient had no pain yet every time that he urinated he expelled a large quantity of blood. The patient was kept in bed with an ice bag on the perineum and the hemorrhage stopped.

In another case, V. A., an Italian, had an organic stricture affecting the bulbar region. The patient could not pass urine, which was coming out drop by drop. No catheter or bougie could go through the stricture; a filiform elastic catheter was tried without success. As the patient was demanding relief, a thin silver catheter, No. 8 Charrière, was successfully introduced, relieving him from a large quantity of urine. A few days after, he came back much relieved. A metal sound No. 8, was introduced through the stricture into the bladder without much difficulty. A few drops of blood followed the removal of the sound. As the urethra was irrigated, the blood began to come out in a full stream. The application of the finger in the perineum stopped the hemorrhage. The compression was continued until bleeding stopped. A week after we could introduce steel sounds increasing the size without causing any more bleeding. The patient was much better and was discharged.

Mr. J. S., for many years had suffered with a stricture

above the bulb. He had been treated by many physicians without any result. Every time that a sound or a catheter was introduced bleeding followed. The patient was badly worn out, he was passing urine nearly by drops and very frequently, his sleep was much troubled by the necessity of getting up every half hour. The prostate was normal, the urine neutral, showed abundant shreds. A metallic sound No. 8 was introduced which went through the stricture. This unexpected success encouraged me to continue the dilatation. This was done by using electrolysis. The patient after the use of electrolysis during the night found it difficult to expel the urine. A doctor was called who catheterized him. The following day he was losing blood in an alarming manner, while for several hours he had not passed urine. Another time the catheter was inserted, but failed to go into the bladder. Hemorrhage followed in a terrific way. The digital compression could stop the hemorrhage but as soon as the compression was left the blood was streaming. In this case the patient was placed under a general anesthetic. A staff was inserted as far as it would go, the perineum was opened longitudinally, then the urethra and a groove director inserted through the stricture. A large incision gave the chance to push the finger into the bladder like for lithotomy. A large short catheter was left in the bladder and the wound was tightly packed. No more blood appeared, the wound healed up in three weeks, and the patient has since passed his urine normally.

Another case was in a young man with hypospadias of first degree; had stricture of the bulbar region. His physician had passed sounds, since then blood had begun to come out from the urethra by drops. With irrigations and instillations of mild solution of nitrate of silver no benefit was obtained. The urethroscope was introduced and it showed that the mucous membrane of the posterior urethra was covered with red, thick, succulent granulations from which the blood was oozing. A six per cent. solution of nitrate of silver was used with a cotton tampon, and the surface was touched every other day. The blood stopped and also the discharge.

In all these cases to which we have referred the urethra

was infiltrated, and granular, and consequently very vulnerable and liable to bleed at the slightest contact. In organic strictures when a process of cavernitis has taken place, the tissues may be so thickened and infiltrated that they easily break. The urethra is an organ supplied abundantly with blood vessels, which take their origin from the pudenda communis, the end of the arteria hypogastrica. The arteria bulbo-urethralis supplies the corpus cavernosum urethra and the arteria profunda penis and runs into the corpus cavernosum. Blood is abundantly provided by these arteries. When the circulation is somewhat impaired by the enlarged condition of the prostate, then the veins are filled, forming a stasis. The plexus pudendalis internus surrounds the prostatic gland, the seminal vesicles, and the pars membranosa of the urethra, forming a thick net which is also known as the labyrinthus Santorini. On account of the venous stasis from compression of the enlarged prostate or from the inflammatory process the tissues are overfilled with blood and any injury is liable to produce hemorrhages.

Goldberg⁴ called attention to severe hemorrhages, which sometimes occur in patients suffering with prostatic hypertrophy. He remarked that the hemorrhages are often the results of injuries caused in attempting catheterism. In some cases of prostatitis who have undergone no treatment, the hemorrhage may be the result of chronic cystitis, or from lithiasis. The hyperemia of the mucous membrane from a continued distended bladder, when relieved by emptying the urine, may be the cause of hemorrhage from a diminished pressure.

Local infections are in some cases causes of hemorrhages from the urethra. In fact an acute inflammatory process of the mucous membrane of the urethra often causes formation of blood vessels, and at the same time the effusion of serum makes the connective tissue loose, and renders it liable to bleed. When catarrhal ulcerations are formed, the mucous membrane may be so vascular that any little contact with a sound or with a catheter is liable to cause loss of blood. When the tissues of the urethra under the urethroscope are touched with cotton on the carrier they sometimes begin to bleed with trouble to the operator.

A chronic inflammatory process, according to Zuckerkandl, may in some cases produce necrosis of the mucosa, and the exposure of the dilated blood vessels, which at the slightest contact cause stubborn hemorrhages.

Other hemorrhages we will only mention, as those caused by the presence of tumors in the urethra and at the neck of the bladder, which are usually soft and of villous nature. The hemorrhage from those tumors are exceedingly stubborn, often they are produced without injury of any kind. Seifert reported two cases of hemorrhages from the urethra, from varicosities of the veins, which began from the fossa navicularis and extended to the middle of the urethra. Hemorrhages may have their origin from tuberculosis of the neck of the bladder, and often in young men spontaneous hemorrhage from the urethra make us suspect the presence of miliary tubercular nodules.

In all our cases which are the subject of study in this paper, we found that the blood was flowing from the urethra independently of the urine. The blood is not clotted in the bladder, but comes out from the urethra as an essential hemorrhage. In some cases the blood has followed the urination, so that the urine at first comes clear of blood, but at the end it was tinged with blood and then drops of pure blood followed.

Intermittent spontaneous hemorrhages of the urethra are usually the result of tumors, or of tubercular ulcerations at the neck of the bladder. The smallest papilloma, and in the same way the smallest tubercular ulceration may cause profuse hemorrhages, which may lead the patient to anemia.

In a slight hemorrhage application of cold water may stop the blood, and if in the pars pendula a compression with a bandage around the penis is often sufficient to stop the hemorrhage. When the hemorrhage is from the bulbar region digital compression on the perineum usually stops the hemorrhage. The value of leaving a catheter or a sound for some time to stop the hemorrhage is more hypothetical than real. In my cases at least it could not even have been suggested. In cases of bleeding from the granulated mucous membrane the best way to stop the bleeding, is the use of the urethroscope, and touching up the granulations with a solution of nitrate of silver from

3 to 8 per cent. Nitrate of silver, coagulating the albumin, covers the granulations with a solid coat, and stops the bleeding, constricts the tissues and the bloodvessels, and heals up the surface.

When the hemorrhage is of great intensity, when it is often repeated, there is no time to hesitate, and urethrotomy has to be performed. We believe that this is the only possible way to save the patient in so dangerous a condition.

1. Seifert. Seltene Ursache von Blutungen aus der Urethra. *Arch. f. Derm. und Syphilys*, Bd. 97, 1909, p. 19.
2. Wrede. *Berlin, Klin. Wochenschr.* 49. 1908.
3. Zuckerkandl. Handbuch der Urologie. Bd. I, p. 750.
4. Goldberg. Ursachen und Behandlungsmethoden schwerer Blutungen der Prostatiker. *Therapie der Gegenwart*, 1906, No. 5.

THE CHOICE OF A SPECIFIC AGENT IN THE TREATMENT OF SYPHILIS BY THE NEW LOCAL ABORTIVE METHOD: Hallopeau and Brodier (*Gazette des Hôpitaux*, Dec. 16, 1909,) in a communication before the Therapeutic Society, reported that they had used the following five remedies in intrapreputial injections: Atoxyl, arsacetin, hectin, mercury bibromide, and an amalgam known under the name of arqueritol. The first two were active and well borne in daily doses of from ten to twenty centigrams, yet severe disturbances of vision were provoked in some cases by very small doses; therefore, these remedies are used only occasionally by the authors. The best results were obtained by daily doses of from ten to twenty centigrams of hectin. It was with this remedy that the authors were able to abort every case of primary syphilis which came under their observation. Injections of mercury bibromide, which are so well tolerated in the buttocks, are not well borne in the prepuce, for they give rise to an extensive induration, which is exceedingly painful and persistent. The same was true of arqueritol, even when given in doses of two centigrams. Mercurial preparations are not adapted for use in this method of local abortive treatment of syphilis. Of the other preparations, hectin seemed to merit preference.

EDITORIAL

A CRITICISM OF GENITO-URINARY SURGERY OF TO-DAY

DR. J. G. PARDOE, we learn from the *Hospital*, criticises rather pertinently certain genito-urinary operations as practised to-day. Suprabubic prostatectomy, for instance, is an operation the enormous value of which in properly selected cases is so well recognized that it is now also practised, in his belief, without real justification. Especially is this the case in regard to carcinoma of the prostate; in not a single case of this condition has he ever known benefit to result from enucleation, and in almost all cases actual harm follows it. The significance of this statement is obvious when it is remembered that one of the best authorities on enlarged prostate encounters malignant disease in about 10 per cent. of his enucleations. Carcinoma of the prostate is a very chronic and slow disease if left alone; but after injudicious interference the course is disastrous. Unfortunately it is so insidious in onset that a positive diagnosis is too often only to be made in advanced and hopeless cases. It follows that carcinoma is frequently met with in prostates supposed to be adenomatous, and it may be only upon microscopic examination that the nature of the growth is recognizable. In any doubtful case where the slightest suspicion of malignancy is entertained an exploratory incision in the perineum is recommended for the removal of a small piece of the gland; should the report show carcinoma, a really radical removal of the gland with the seminal vesicles and the lower part of the bladder is the only justifiable operation, and if this cannot be carried out no surgical measures (beyond catheterization and, if necessary, suprapubic cystostomy) should be employed.

Review of Current Urologic Literature

ANNALES DES MALADIES DES ORGANES GÉNITO- URINAIRES

VOL. I., NO. 7, APRIL 1, 1910

1. On the Pathogenesis of Renal Hematurias. By B. Motz, Paris.
2. Remarks on a Case of Hydronephrosis. An Extraordinary Occlusion of the Ureter. By E. Hanch and J. E. Lohse, Copenhagen.
3. The Pathogenic Rôle of Abnormal Renal Arteries. By Alfred Pousson.

1. THE PATHOGENESIS OF RENAL HEMATURIAS.—Motz discusses bleeding from the kidney in relation to the causes of this symptom. A distinction should be made between renal hematuria and renal congestion. In congestion there may be an effusion of blood into the gland itself, which is not strictly speaking a hematuria. There are some forms of renal congestion, however, which may cause renal hemorrhage.

Motz classifies renal congestion into the following types: (a) Congestion due to nervous disturbances. This is exceptional and occurs, for example, in the course of an attack of epilepsy, after which ruptures of glomerular vessels have been found. (b) Congestion due to local irritation, cold, poisoning, or infections. We know now that hematurias due to exposure to colds or to the ingestion of certain drugs are due to acute nephritis. (c) Renal congestion due to interference with the venous circulation. Renal congestion due to heart lesions may be accompanied by intra-renal effusions of blood. (d) Congestion due to obstruction of the flow of urine. Intracapsular hemorrhages have never been observed in cases of renal retention, although congestion may be very marked in these cases.

It appears, therefore, that while a marked congestion may give rise to an intra-renal hemorrhage, the general rule is that a normal congested kidney does not bleed. If there is hematuria, there is always something more to be looked for in the shape of a renal lesion. The word "congestion" should be avoided in speaking of obscure renal hematuria. Bleeding in the kidney may take place either from the interstitial capillaries, or from the glomerular vessels. A profuse, abundant renal hemorrhage cannot be dependent upon the capillaries, but

must be due to an ulceration of a glomerular vessel. The following classification of renal hematurias is useful. In this grouping, hematurias due to parasites have been omitted:

A. Hematurias due to systemic causes:

Angio-neurotic,
Essential,
Hemophilic.

B. Hematurias due to acute nephritis:

C. Hematurias due to interstitial nephritis (chronic).

D. Mixed hematurias due to stone, tuberculosis, or tumor.

Of the first group, angio-neurotic hematurias have never been shown to exist upon the basis of a pathologic anatomy. This type, therefore, should be rejected. By "essential hematurias" we mean those without any cause. If these be analyzed carefully some cause will always be found. There are in reality only two authentic cases of essential hematuria on record in which careful histological examination showed that there were no lesions whatever. One of these was reported by Schade, the other by Klemperer, and even in these cases some doubt may be cast as to the completeness of the examination; for we know that lesions may be very circumscribed and very many sections are needed to exclude their presence.

Hemophilic hematuria is also rare. There are practically five cases, possibly six, on record. Two cases, reported by Guyon, one by Uhde, one by Grandidier, and one by Klemperer. In Senator's case examination showed later that chronic nephritis was present. Little need be said concerning acute hemorrhagic nephritis, in which albumen and casts are always found in the urine.

An important variety of hematuria is due to chronic interstitial nephritis. It is this type which contributes most of the hematurias which are apparently without cause. An interesting variety is hematuria *a vacuo*, abundant bleeding, sometimes fatal, which occurs after a too rapid evacuation of a distended bladder in cases of retention. These cases are due to the sudden rupture of already diseased blood vessels in the kidney. The hematurias of hydro-nephrosis, which occasionally occur, are also due to interstitial nephritis, and the same may be said of renal bleeding in movable kidney. Nearly all movable kidneys are the seat of nephritis. A few cases of hematuria during pregnancy have been reported, and here again nephritis was responsible. In fact, nephritis may be said to play the most frequent rôle in the causation of renal hematuria.

The mechanism of hematurias due to stone, to tuberculosis; or to tumor of the kidney, is still not well understood. In stone, it is not the traumatism which causes the bleeding, but the secondary nephritis which attacks the glomerular. In tuberculosis hemorrhage occurs chiefly in the early stages and is due to the invasion of one of the glomerular capillaries by tubercle bacilli. The latter burrow through the wall of the vessel, and cause ulceration of the capillary, as well as of the adjacent urinary tubule. Later in the disease, when the tubules are blocked by tuberculous lesions, there is less hematuria. The same mechanism may be invoked in the case of renal tumors. Here there may also be a rupture of the newly-formed vessels of the tumor which may communicate with the tubule. In the case of tumors which are encapsulated and apparently have no connection with the renal parenchyma, it is difficult to explain the bleeding. The hemorrhage in these cases probably comes from the areas of the kidney which are immediately adjacent to the tumor, and are the seat of chronic interstitial nephritis.

2. A CASE OF HYDRONEPHROSIS DUE TO AN EXTRAORDINARY OCCLUSION OF THE URETER.—Hauch and Lohse report the case of a woman aged 32, multipara, the last labor taking place two months before admission. After the last labor, the abdomen seemed to remain practically of the size as it had been before delivery. There were no marked symptoms of any kind, save this increase in the size of the abdomen. On examination the peritoneal cavity was almost filled with a fluctuating tumor, presenting five or more lobules, which could be distinctly felt. The tumor was especially prominent in the left portion of the abdomen. The tumor could not be felt in the pelvis upon bimanual examination. The ureteral catheter on the left side showed obstruction, and the absence of urine. Upon laparotomy a large globulated hydronephrosis was found, and the tumor was removed with some difficulty. The bosselated arrangement of the tumor, according to the authors, is of great assistance in the diagnosis of large hydronephrotic tumor. The kidney was practically destroyed, and consisted of a number of distended cavities. In one of these a small stone was found. A noteworthy feature of the case was the condition of the ureter. The upper portion of this was distended, the lowermost was normal in size; but between the two portions was a swelling which on section was found to consist of newly-formed tissue containing masses of crystalline substance. The crystals were probably traces of a stone which was in the process of becoming absorbed. If the kidney had not been removed just at that time, the probabilities are that the origin of the hydronephrosis would never have been disclosed and that the case would have gone on

record along with the many other cases of hydronephrosis of obscure origin.

VOL. I., No. 8, APRIL 15, 1910

1. Multiple Calculi in the Pelvic Portion of the Ureter in a Child.
By MM. Eynard, of Marseilles, and Rafin, of Lyons.
2. The Advantages of Urethroscopy. By M. Abadie, Oran.
3. Urorythmography: A Study of the Renal Secretion and of the Ureteral Evacuations by the Graphic Method. By Reynaldo DosSantos, Lisbon.
4. Urethral Electrolysis. By Paul-Charles Petit, Paris.
5. Method in Urology. By Stefanescu-Galatzi, Jassy, Roumania.
6. Modification of the Method of Vesical Drainage. By MM. Jean and Paul Fiolle, Marseilles.

1. MULTIPLE URETERAL CALCULI IN A CHILD.—Eynard and Rafin report the case of a girl aged $6\frac{1}{2}$ years who had been well until a year before admission. During the nine months preceding examination, the urine had been cloudy and sometimes bloody. There were no other symptoms. Radiography disclosed on the left side five or six triangular stones situated in the pelvic portion of the ureter. Laparotomy was performed and the ureter was opened, retroperitoneally, and it was found that the stones had migrated upward into the pelvis, and that they could be removed by enlarging the incision. The recovery was uneventful.

2. THE ADVANTAGES OF THE URETHROSCOPE.—Abadie recommends a special stand which can be rolled up to the examining table, and which is equipped with all appliances for controlling the current needed in urethroscopic work and in intra-urethra treatment. The stand is equipped with a theostat for light and for the galvanic current, a milliamperemeter, a switch, and an interruptor, an attachment for a faradic coil etc.

Abadie employs the following method of treatment in cases of chronic urethritis. The first step is to re-establish, if possible, the normal calibre of the urethra, either by means of sounds, or by urethrotomy, or electrolysis. During this treatment irrigations with potassium permanganate or with mercuris oxycyanide are given. Internally urotropin; prostatic massage, if necessary. Three or four treatments are then given, during which the urethra is massaged while it is being irrigated with Jeanbrau's tunneled irrigator, and then instillations of silver nitrate, or injections of collargal 5% are given. The treatment

is then interrupted for eight days, and then the urethroscopic treatment is begun. The patient is seen every two weeks; not oftener. Applications are made with adrenalin, tincture of iodine, citric acid, or with a solid stick of silver nitrate. For the enlarged urethral glands cauterization with the Kollmann electrolysis needle is employed as a final step. The treatment, in all, lasts from two to three months, and the results have been better than with any other method, although it was impossible in some chronic cases to cure the morning drop and the shreds completely. Often the treatment succeeded in changing the drop to a thin transparent discharge, containing epithelia and leucocytes, but no gonococci or other bacteria.

3. URORYTHMOGRAPHY.—DosSantos presents urorythmography as a method intended for the study of the course of renal secretion on the one hand, and of the value and the rhythm of ureteral ejaculations on the other. He presented this method for the first time to the medical societies of Lisbon, in March, 1909. The apparatus since then has been modified somewhat, and Heitz-Boyer, of Paris, showed a perfected model of it at the French Urological Association meeting of October, 1909. The apparatus consists of two parts, which are connected by electric wires when they are put in action. The first part consists of two *receivers*, one for each kidney. The second part, of a *registering device*.

The receivers are intended for the reception of the drops of urine as they flow from each ureteral catheter. Each receiver consists of a small glass funnel, provided with a lateral opening and suspended by means of a ring attached to a steel spring, the vibrations of which are controlled by means of two opposed screws. The spring and the screws are in turn fixed upon a stand provided with binding posts for electric wires. The registering device is composed of a clockwork, which sets in motion a cylinder carrying a strip of paper. Upon this strip two pens, attached to levers, each independently connected to an electric wire, register independently the curve corresponding to the right and the left kidney. The make and break of the current is made by each drop dropping into the funnel, which sets in motion the spring. The latter touches the screw, which in turn is connected with the binding post and the wire leading to the corresponding pen upon the registering device. The apparatus can be run by dry batteries, each receiver being attached to the battery by one of the binding posts. Each drop of urine is registered as a short vertical line upon the drum, and a successive number of drops is pictured as a number of vertical lines closely set. The tracing of the successive ejaculations from the ureter therefore, is found to consist of groups of closely set vertical

lines, the number of lines in each group varying with the number of drops registered during each ejaculation. The ureteral catheters are supported over the funnel by means of a specially constructed stand. The value of this method lies in the study of renal secretion, especially during the functional tests. An advantage is that the urine is not interfered with in any way, and that it can be examined in whatever manner may be desirable.

5. METHOD IN UROLOGY.—Stefanescu-Galatzi pleads for a more general adoption of a definite method in urologic diagnosis. The method which he pursues is that of the Necker School. This method, worked out by Guyon, is like a family bond which unites all those who have been taught at his school no matter in what part of the world they may work later on. Some physicians call themselves specialists merely because they have acquired the trick of passing a sound; yet, to see such men work, one needs but one word, one gesture, to detect the lack of that discipline which stamps those who have acquired the Necker method. The impression from Galatzi's article is that all who have studied with Guyon are possessed of a patent of nobility, so to say, in urology, while the common herd who have not had that advantage, although they might have worked with other eminent men in Vienna, Berlin, London, and even in New York or Chicago, ought to be ashamed of themselves for their despicable ignorance. It seems to us that while method is a great desideratum, the author is pushing the Necker cult a bit too far in this panegyric. It would be interesting some time to collect from literature utterances similar to this, which would constitute a veritable anthology of the Necker school. The serious portion of the article presents a valuable outline of the various symptoms which the urologist has to deal with in diagnosis, and a presentation in tabular form of the varieties, causes, and diagnostic significance of these various symptoms. In closing, the author apologizes for the, perhaps, too minute discussion of elementary details: "It was merely my fanaticism for the extraordinary teachings of M. Guyon, who has so brilliantly built up, piece by piece, the edifice of modern urinary surgery. The effect of a strict discipline of this sort may often be that, like in the great religions, the converts are more fanatical than the great leaders. It was not with the idea of modifying the method, but rather to glorify it, that I dared write this timid essay, which I offer as a respectful homage to the great urological religion and to its great leader, M. Guyon."

The quoted passage is included here for the edification of those readers who are philosophic enough to see the point.

6. MODIFICATION OF THE METHODS OF SUPRAPUBIC DRAINAGE.

—Fiolle and Fiolle discuss critically the various methods at present employed in suprapubic vesical drainage. They found that the reason why siphon drains were ineffective was that they did not have an attachment providing for the entry of air from above into the bladder. Thus, if a bottle be filled with water and be closed by means of a stopper through which a siphon tube fits tightly, no flow will result. If, however, the stopper be perforated with a second opening through which a straight tube is allowed to enter and to penetrate to the bottom of the fluid then the flow of water will go on without difficulty. The reason is that in the first instance air could not enter the bottle and a vacuum was produced, as the water flowed off, while in the second instance air could penetrate and a free flow resulted. This is what happens in the bladder into which we introduce a siphon, closing the walls tightly about the tube. No siphonage takes place. A second tube should be introduced four or five centimeters longer than the vesical arm of the siphon. As the bladder fills, the fluid rises in both tubes. When the fluid has reached the bend of the siphon, it begins to flow through the siphon tube, while air enters the bladder through the second tube and replaces the urine. The air can be filtered through cotton before it is allowed to enter. The authors employed this method successfully in a case of diverticulum of the bladder in which drainage was difficult. Continuous irrigation may also be practiced through the second tube, by arranging the apparatus as follows: To the top of the glass tube which enters the bladder is attached a rubber, double-current arrangement. One of the tubes in this appliance allows the entrance of irrigation liquids, the other the entrance of air. When the fluid in the bladder rises to the level of the bend of the siphon, which, of course, is in place in addition to the straight glass tube mentioned, the fluid flows out of the siphon into a suitable receptacle and air enters into the bladder through the accessory tube. Thus the bladder is frequently emptied of all septic matter.

ZEITSCHRIFT FÜR UROLOGIE

VOL. IV., No. 5

1. Contributions to the Pathology of Gonorrhea of the Male Urogenital Canal. By G. Rost, Kiel.
2. Contribution to the Study of Incontinence Due to Stricture of the Urethra. By D. Kokoris, Athens.

3. The Value of Measuring the Blood Pressure in the Diagnosis and Prognosis of Surgical Diseases of the Kidneys. By C. Adrian, Strasburg.
4. A Case of Pyelolithiasis. By Julius Michelsohn, Hamburg.

1. PATHOLOGY OF GONORRHEA.—Rost presents an elaborate study upon this subject, based upon two cases in which he was able to investigate histologically in great detail the changes which occurred in rather recent gonorrheas. The following conclusions were formulated by the author as the result of these investigations. In spite of an apparent clinical cure, the gonorrheal process may leave in the urethra a marked, chronic inflammation, which affects the subepithelial layers, or even the deeper tissues. The posterior portions of the urethra are more predisposed to this than the anterior. The chief seat of this inflammation is in the subepithelial connective tissue in the folds of the mucosa, in the deeper parts, however, the lymph spaces, about the arteries and nerves, are the seat of inflammatory changes.

The metamorphosis of the cylindrical epithelium of the urethra into squamous epithelium does not seem to take place throughout the entire extent of the canal, but may be confined to the portions which have undergone the greatest amount of chronic inflammation, namely, the folds. The elastic fibers are extensively destroyed in the regions of the inflammatory infiltrates. In these places there are also, not only round cells, but plasma cells; while the number of polynuclear cells is diminished. In the cases examined there did not seem to be any proliferation of epithelia, nor any formation of papillary growths.

The Littre's glands may be diseased not only in their excretory ducts, but also in their acini. They seem to have the property of harboring a marked inflammation for a considerable length of time. Endarteritis may occur in the vessels of the corpus cavernosum and of the glans. Gonococci are found in the epithelium and in the upper layers of the subepithelial connective tissue. Usually they are free less frequently intracellular. They could not be demonstrated within the blood vessels or lymph channels.

In the prostate there is an involvement, not only of the ducts, but also of the glandular substance proper. The ducts show purulent and desquamative catarrh, which may be continued over to the acini. The interstitial tissue of the prostate may show diffuse inflammation, or localized infiltration, or abscess formation, which seem to develop perivascularly. Gonococci may be found in the epithelial and subepithelial layers of the prostatic parenchyma. In the vesicles there may be an inflammatory infiltration, especially of outer portions.

2. INCONTINENCE DUE TO STRICTURE.—Kokoris reports the case of a man 35 years of age, with a history of repeated attacks of urethritis. For the past month he had been suffering from increasing difficulty in urination, culminating in almost complete retention, chills, fever, and an attack of profuse hematuria. Three strictures were found one in the pendulous portion, the second in the bulb, and the third a narrow irregular stricture in the posterior urethra which admitted only a filiform. The patient had continuous dribbling without desire to urinate. Internal urethrotomy was performed, followed by dilatation, which gradually relieved the symptoms. The patient never gained perfect control of the urine, however but was able to retain it for about two hours. The incontinence was due to a stricture involving the sphincter of the bladder. After the urethrotomy the cicatrized tissue did not completely regain its normal elasticity. Cases of this sort are rather uncommon. The author hopes that continued treatment, including faradization of the sphincter, might bring about a more perfect result, so far as the control of the sphincter is concerned.

3. BLOOD PRESSURE IN SURGICAL AFFECTIONS.—Adrian occupied himself with a study of the blood pressure in its relation to the diagnosis and prognosis of surgical renal affections. This subject has not been given the attention which it deserves. In a monograph published in 1905 Geisbeck considered the subject in a general way. Since then Reitter (1905-1907), Braun and Truet (1909), Kato and Kötzenberg (1908) have referred to this subject. The present author's investigations were conducted principally in cases of surgical renal affections, but there was also tested for comparison a number of cases of non-surgical renal and abdominal affections. While the results of the investigation were not conclusive, yet there were certain points which deserve attention. The measuring of the blood pressure may be considered as a valuable diagnostic aid, the data of which should be placed in the balance in the consideration of surgical renal cases.

In the first place, regarding the diagnostic value of the tonometric method, it must be admitted that but very little can be learned from the blood pressure regarding the diagnosis of surgical renal affections. The blood pressure does not tell us whether a renal affection is unilateral or bilateral; and in deciding this question we must consider all other clinical data. In hematurias of doubtful origin a steadily high arterial pressure speaks in favor of a nephritis as the cause of the bleeding.

The method of tonometry does not offer any means of differentiating between a renal tumor and a tumor of the abdomen due to

some other cause. Nor is the method applicable in the differentiation between the various surgical renal affections, as Reitter and Schmidt tried to work out.

It is doubtful whether the method can be applied in prognosis, as was suggested by Kato and Kotzenberg. These authors pointed out that theoretically the blood pressure should return to normal when the offending kidney has been removed, while the healthy kidney remains. On the other hand, if the second kidney is also involved, the blood pressure continues high. The blood pressure may, however, be valuable in prognosis in so far as its continued rise is a valuable warning sign of uremia; while during a uremic attack, the lowering of the pressure may be considered a good omen. In septic urinary fever, when both kidneys are affected, there is a marked lowering of the blood pressure, which is the result of the exhaustion of the cardiac system, and as such is of bad prognostic significance.

4. **PYELOTOMY FOR STONE.**—Michelson reports the following case:

A stone was detected by X-ray in the pelvic portion of the ureter. The operation of pyelotomy was performed, the stone removed, and the pelvis sutured with a double tier of silk sutures. The wound was closed except at its lower point, where a strip of gauze was allowed to issue. Patient made an uneventful recovery.

Since the development of X-ray diagnosis of stones in the kidney and ureter, Michelson believes that aseptic pyelotomy should have a more extended field for application. Pyelotomy, in aseptic cases of stone, is the more conservative operation, which spares the renal tissue from injury completely. If carefully sutured, the wound in the pelvis should not give rise to fistula. The method avoids the use of compression of the renal pedicle, and hemorrhages, especially due to accessory renal vessels which are not clamped in nephrotomy, are not to be feared in pyelotomy. Fistulæ, if they occur, are more easily repaired.

ANNALES DES MALADIES VÉNÉRIENNES

VOL. V., No. 4, APRIL, 1910.

1. Extensive Dorso-Lumbar Ulcerous and Serpiginous Syphilide, in the Course of an Undiscovered Syphilis. By G. Define, Naples.
2. Hemolytic Jaundice of Secondary Syphilis. By MM. Gaucher and Giroux, Paris.

3. The Seats of Primary Lesions in Children under Fifteen. By MM. Gaucher and Flurin, Paris.
4. The Modes of Contagion in Syphilis of Children. By Henri Flurin and Adrien Manne, Paris.

1. EXTENSIVE DORSAL SYPHILIDE.—Define reports a case of a tertiary lesion occurring in a patient in whom syphilis had never been discovered previously. The patient was a woman aged 66, who two years before admission, and without apparent cause, discovered a small nodule in the skin of the left lateral portion of the back, in the outer portion of the third intercostal space. Within a month this lesion had begun to ulcerate and had increased in size. Other lesions of the same character gradually appeared, and within a year the ulcerating surface had extended over a large portion of the back. No physician was able to make a diagnosis or to aid her. On examination a vast serpiginous syphilide was discovered. The Wassermann reaction was positive. No spirochetæ were found, however, in the exudate from the lesions. It was impossible to obtain any clue as to the mode of infection or to the previous evolution of the disease. The author closes by emphasizing the value of the Wassermann reaction, in doubtful cases of cutaneous lesions.

2. HEMOLYTIC JAUNDICE IN SYPHILIS.—Gaucher and Giroux studied two cases of secondary syphilis in which jaundice had occurred, which they classified as "acquired hemolytic jaundice." The histories of these cases are given in detail. In both cases the jaundice was quite different in clinical and hematological characteristics from the so-called secondary syphilitic jaundice which is described in the text-books. In the two cases both the clinical evidence and the examination of the blood revealed that they were types of acquired hemolytic jaundice such as have been described by Chauffard and Widal. The jaundice was not marked, there was no discoloration of the feces, no bile in the urine, and no phenomena of biliary intoxication. On the other hand, the blood picture was quite different from that ordinarily seen in catarrhal jaundice. In these cases there is usually no anemia, but the red cells increase in size, and there is even sometimes an increased number of red cells. In the two cases reported, on the contrary, there was a slight anemia, but in addition there were also signs of a process of repair: poikilocytosis, anisocytosis, and an increased number of polychromatophiles. It was interesting to compare this hemolytic jaundice of syphilis with the jaundice of the same type which occurs in malaria. This comparison is important, because the hematozoon of malaria and the

spirochetæ of syphilis are allied species, classed in the same division of protozoa. The authors conclude, from their observations that true syphilitic jaundice of the secondary stage is a hemolytic jaundice. Biliary jaundice, when seen in the secondary stage, is not dependent upon syphilis as such. On the other hand, the hemolytic toxic-infectious jaundice, which is observed in secondary syphilis is analogous to that which is seen for example, in lead poisoning.

3. PRIMARY LESIONS IN CHILDREN UNDER FIFTEEN.—Gaucher and Flurin collected 23 cases of primary lesions in children under fifteen, which occurred in Gaucher's service at the St. Louis Hospital from 1902 to 1910. The cases are summarized briefly. There were nine cases of genital primary lesions, the interesting point being that in these cases the actual seat of the lesion was perigenital. In a number of these cases the infection was truly venereal. Of the extra-genital infections, there were six primary lesions upon the lips, three upon the eyelids two upon the scalp, one of the breast, one of the inguinal fold, and one of the anal region. This might be compared with the statistics of Fournier, who contributes the following figures for extra-genital primary lesions in children under fifteen: Eight upon the lips, two on the cheeks, one of the nostrils, two of the eye, one of the tongue, three upon the neck, four upon the anal region, and five infections of the arm due to vaccination. There are practically no other statistics upon this subject, in children under fifteen.

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CHRONIC PROSTATITIS, WITH SPECIAL REFERENCE TO TREATMENT *

By WILLIAM CULLEN BRYANT, M. D., Pittsburg, Pa.

SO much has been written about the prostate in recent years that the subject is approached with some timidity. However, the fact that chronic prostatitis is really more prevalent than is generally supposed, and that many cases are practically incurable, seems to justify further consideration of the subject.

It would, of course, be impossible in a paper of this kind to discuss all phases of the subject. However, a brief reference to the etiology, pathology and symptomatology will make what is to be said about the treatment more clear.

The prevalence of the disease has been variously estimated by different writers. Without going into statistical details, it can be safely stated that more than seventy-five per cent. of all gonorrheas are followed by prostatitis. This can be easily understood when we consider that probably more than ninety per cent. of gonorrheas become posterior. As gonorrhea is only one of the many causes of prostatitis, and as the post mortem table has revealed the fact that chronic prostatitis can exist without any pathological condition being present in the urethra, it would seem as though the estimates of different observers as to the frequency of the affection has been under, rather than over, estimated.

In considering the etiology of chronic prostatitis, a word

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concerning the normal structure of the gland will make the subject clearer and also throw some light on the pathology and treatment.

About the third month of foetal life the prostate is represented as a small annular mass of mesoblastic tissue surrounding the lower ends of the Wolfian and Millerian ducts, which later become the ejaculatory ducts and prostatic utricle respectively. Epithelial buds, growing outwards from the primitive urethra, pierce this mesoblastic tissue and become the secreting structure of the gland. As each one of the thirty or more subdivisions of the glandular structure drain independently of each other into the prostatic urethra by a long, narrow, wavy duct, which is not branched for the last centimeter (or one-third of an inch) of its course, it can be readily seen that any inflammatory condition which obstructs or occludes this duct is hard to remove and that repeated blocking of this duct certainly threatens the vitality of that particular part of the gland which is conveniently spoken of as a tube system, as the gland is of the tubo-alveolar type.

ETIOLOGY

The causes of chronic prostatitis are numerous but readily resolve themselves into two main classes, viz.: infection and congestion. At the head of the infectious classes stands, of course, the *Gonococcus*, but other bacteria are not to be overlooked, which may be carried to the prostate on instruments, catheters, etc., or other ways, for example, tubercle bacilli. As an example of the accidental infection of the prostate by ordinary bacteria, the following case is cited: I have at present under treatment, a physician suffering from a chronic prostatitis which began in this way. The patient never had any venereal disease, but some years ago, when the Janet method of irrigation first came into vogue, he irrigated his bladder with a solution of Potassium Permanganate, just as an experiment. In making up the irrigation he did not use sterile water. Although previous to that time he had never suffered with any urinary trouble, following this irrigation he immediately de-

veloped a prostatitis from which he has suffered ever since.

The second type of cases are those caused primarily by congestion, due to excessive or ungratified coitus, masturbation, etc. In these cases, of course, bacteria of various kinds, which infect the anterior urethra, as, for example, the various Staphylococci and Colon Bacilli find the previously congested prostate a favorable culture ground. It may be noted that the posterior urethra in health is free from bacteria, while the anterior urethra is never free from them; although their presence there is not detrimental in an otherwise healthy state. There are cases, however, in which it is difficult to assign a cause. An example of this is noted as follows: Mr. E. O., aged 31, consulted me November 15, 1909. He was suffering from frequent urination, accompanied by pain and burning in the posterior urethra. The condition had existed for about two years and he had consulted several physicians. Each one advised him to drink more water. Being a man of large physique and good capacity, he faithfully increased his consumption of water until he said he was drinking more water than his horse. His water supply was cut down to a normal amount and his frequency was relieved but the pain and burning continued. This patient has never had intercourse in his life and denied unnatural practices. When a boy he had some sexual desire and normal erections but for several years preceding his present trouble he has had no erections. Examination revealed a prostate considerably enlarged; at least twice the normal size. No hard nodules were present, but numerous areas could be felt which indicated a chronic inflammatory process. The expressed secretion showed some normal elements but considerable pus. After the prostate was massaged a few times it was noticed on one or two occasions that the expressed fluid was brown or greenish brown in color, and its general character suggested a very chronic process. This patient was treated by massage, irrigations and, occasionally, dilatation and applications to posterior urethra through the urethroscope. The pain and burning has practically disappeared, and what seems to impress the patient most is the fact that the erections are returning.

PATHOLOGY

The pathology of chronic prostatitis does not differ much from the pathological picture seen in chronic inflammations of other glands lined with columnar epithelium, except that the occlusion of the excretory duct, of which there is only one to each individual tube system, is more apt to result seriously for the glandular parenchyma than if the ducts were more numerous and their lumen larger. The occlusion of the excretory duct by inflammatory processes, which can usually be classed pathologically speaking, as a type of exudative inflammation, produces a retention of the normal as well as the pathological contents of the glandular acini, which, if not relieved, soon threatens the vitality of the lining epithelium, both by pressure and by virtue of the bacterial toxins present. Hence, it is not long until the epithelial cells, which are the most important part of the glandular parenchyma, or secreting structure of the gland, begin to show signs of degeneration. Microscopical sections from a normal prostate show beautiful, clear cut epithelial cells with bright staining nuclei. In chronic prostatitis the cytoplasm of the cell becomes granular and the nuclei stain poorly, or not at all, and the outline of the cell loses its clear-cut distinctness. If the process progresses to the point where the epithelium of the affected tube system, or systems, as the case may be, is entirely destroyed, this is never replaced, as it is an established pathological fact that epithelial cells grow only from pre-existing and fairly normal cells of the same type. The many cases of chronic prostatitis in which pus in the prostatic secretion persists in spite of treatment, are probably explained by the fact that some of the tube systems have had their epithelial lining destroyed and exist for a long time as chronic abscesses. Fortunately, nature helps to obliterate these in the following way. The fixed connective tissue cells in the periglandular spaces increase in number. It is highly probable that the endothelial cells of the capillaries as well as the so-called plasma cells, are also factors in the process of forming new connective tissue to take the place of the recently destroyed part of the gland. This increase of connective tissue consti-

tutes a condition of fibrosis. All newly formed connective tissue follows the same rule and contracts as time goes on and the site of the abscess may be finally obliterated. The digital examination of a case of long standing prostatitis will give that peculiar cartilaginous feel, characteristic of a chronic fibrous condition, which may be felt as separate, discrete nodules, or may be noticed as affecting one entire lobe of the gland, and occasionally both lobes. The theoretical classification of chronic prostatitis into catarrhal, follicular, parenchymatous, etc., is not always practical, as some cases present lesions embodying all of these and a distinction between them is not always possible clinically.

SYMPTOMATOLOGY

The symptoms of chronic prostatitis are so complex and varied that some classification is advantageous. This is especially useful in writing up case histories. The subjective symptoms are conveniently classified as:

- 1st—Urinary Symptoms;
- 2nd—Sexual “
- 3rd—Referred “

The urinary symptoms are not often due to obstruction, although Young has reported several cases operated on for obstructive prostatitis in which the hyperplasia reached the point of obstruction, especially at the vesical orifice, and constituting a median bar, which could not be relieved by the usual methods. The phenomenon of urination, while apparently simple, is really a complex act. The relaxation of the sphincter must occur simultaneously with the contraction of the detrusor. In chronic inflammation of the prostate, the pressure of the inflammatory exudate on the delicate nerve endings, produces an interference with the co-ordination of the different muscles involved, the most marked of which is the spasm of the sphincters. Thus we observe hesitation, lack of force of the urinary stream, dribbling after urination, etc. In several cases which I have operated on recently for other affections, but in which

a chronic prostatitis was also present, I have noticed a distinct contracture of the internal vesical orifice. When the finger was introduced into the bladder the internal vesical orifice felt like a hard fibrous ring, and this condition, no doubt, accounts for some of the urinary symptoms. Frequency of urination is often present, especially in neurasthenics. Even in those not neurasthenic, congestion of the trigone and the prostatic urethra increases the irritability and produces frequency.

The sexual symptoms are usually manifested at first by a condition of erythism or undue excitability. Patients in this condition often imagine that their sexual powers have taken a new lease of life, on account of the erections occurring more frequently and on the slightest provocation. However, they sooner or later realize that their hopes are groundless, for this condition is followed later by a loss of sexual desire, imperfect erections, premature ejaculation, etc. The cause of these symptoms is obscure, as no one has as yet been able to explain satisfactorily the phenomenon of erection. However, there is no doubt that the condition of the prostate has considerable influence on the sexual characteristics of the individual, and clinical experience bears out the fact that cases of prostatitis manifesting sexual symptoms are often improved and cured by proper treatment. There is no doubt that the pathological conditions exert some influence in the terminal filaments of the pudic nerve in the prostate, and thus reflexly affect the power of erection. Experiments on dogs have shown that section of the pudic nerve abolishes erections.

REFERRED SYMPTOMS

The referred symptoms are the most interesting, and probably the most frequently overlooked. The explanation of the referred symptoms is based on the intimate relation that exists between the roots of the nerves supplying the prostate with the roots of the nerves supplying the various parts of the body to which these pains are referred. The nerve supply of the prostate is through the pudic nerve. Just how far up the spinal cord the roots of the pudic take origin is a matter of

some dispute, and little light is thrown on this subject in the various works on anatomy. Even in such an eminent authority as the last edition of *Keen's Surgery*, it is stated that the pudic nerve arises from the three upper sacral, the 11th and 12th dorsal and, possibly, from the 5th lumbar nerve. It seems paradoxical that the intervening parts of the cord should be skipped. However, there is no doubt but that the pudic nerve takes its origin as high up as has been stated, but the exact origin is purely conjectural. The terminal filaments of the sensory fibers are endowed with genital corpuscles, or end bulbs of Krause. And Young has found beneath the dense tissue of the capsule numerous nerve bundles containing large numbers of ganglion cells. Victor Blum has found in the peri-prostatic tissue corpuscles similar to the end bulbs of Krause. With such an elaborate and highly specialized apparatus for the reception and conveyance of sensory impressions, we can readily understand the influence this organ exerts on the individual. The impressions thus received, whether they be due to the pressure of the inflammatory exudate, or to some other cause, are conveyed to the cord and by a psychic error are felt in the terminal filaments of the nerves going to the surface of the body which arise from the same spinal segments as the pudic. This, of course, is merely a statement of the phenomenon of referred pain. The scientific explanation of the same is not attempted, except to state that the impressions received by the delicate and numerous nerve endings in the prostate are so magnified that the referred pains are the result of an overflow of such impressions. It may be noted that referred pains from other viscera are often more pronounced (on the surface of the body) than in the organ affected; as, for example, various abdominal affections. Butler states that the phenomenon of referred pain is due to an irradiation of the painful impressions from their accustomed channels. Thus, in prostatitis, we observe pain in the lumbar region, which is probably the most frequent. Also pain in the perineum, groins, testicles, urethra, glans penis, etc., supra-pubic pains, pain down the back of the legs, usually one only, simulating sciatica. Referred pain in the region of the kidney from prostatitis has simulated the pain of renal cal-

culus so closely that cases are on record where an operation had been performed and no stone found and the symptoms were later cured by massage of the prostate.

One symptom of chronic prostatitis, which is rather rare, is the presence of residual urine. The following very marked case came under my observation some time ago. H. J., aged 44, no venereal history, five years ago had several attacks of dysentery, the last one being diagnosed as amebic dysentery. Ever since that attack has had difficulty of urination. Suffers very frequent, painful urination, attended with intense straining. Amount of residual urine 300 cc., which flows out without difficulty during sleep and bladder is practically empty on awakening, showing there is no obstruction. May state that this patient has no symptoms of locomotor ataxia and has no stone in his bladder, but the cystoscope shows wonderfully large trabeculae, which are evidence of the intense straining efforts at urination. The cause of these symptoms is, of course, the spasmodic contraction of the sphincter, which refuses to relax at the moment the detrusor contracts.

The most important objective symptom of chronic prostatitis is the character of the secretion expressed by massage. The normal prostatic fluid presents distinct characteristics, which are quite interesting. It is an opalescent fluid, homogeneous to the eye, but exceedingly heterogeneous under the microscope. The most important constituent of the prostatic secretion are the lecithin bodies, which make up probably 50 per cent. of the secretion. When the expressed secretion is not homogeneous, but shows flakes or shreds even quite small, we can be sure that some pathological condition exists, and even a few flakes or shreds in the secretion is a sufficient evidence of inflammation. The secretion may even be homogeneous to the eye and yet the microscope show pus cells, which never occurs in a normal prostate, even after a vigorous massage.

TREATMENT

The general treatment of a case differs with the individual. Some cases do not require any general treatment at all, while

in others a course of physical culture, baths, etc., especially swimming, on account of its effect in strengthening the perineal muscles, is a valuable aid in the treatment. Internal medicines are not often required, although I have sometimes found it advantageous to give ten or fifteen grains each of Urotropin and Sodium Benzoate, dissolved in a glass of water, three times a day.

Urotropin should never be continued for more than ten days or two weeks at a time, on account of its irritating effect on the kidneys. I have had several disagreeable experiences with imitations of Urotropin, and for that reason think it wise to see that we get the genuine article. Of course, we must remember that the usefulness of urinary antiseptics is rather limited and while they do have a very marked effect on the bacteria which are free in the urinary stream, they have no effect on the deep-seated foci of infection. In these modern days of scientific medicine, I think we are often prone to rely too much on the objective symptoms and pathological conditions as we see them through the microscope and other laboratory aids, and we are apt to leave the patient's personality and idiosyncrasies out of our evidence in summing up the case. Of course, many patients are neurasthenic, but I think many a poor fellow is put into that class unjustly. Where there are symptoms there is usually a lesion, if we probe deep enough to find it. It undoubtedly gives the patient more confidence if we listen attentively to the recital of his symptoms, and we will not be so apt to overlook complications which might pass unnoticed. One of the most potent factors in our failures is the fact that we have overlooked something. In this connection I may refer to a case under treatment at the present time. He had been faithfully and persistently treated for over two years, by massage, irrigations, dilatations, etc., having at the same time all the cardinal symptoms of prostatitis. He undoubtedly has prostatitis, but, in making a cystoscopic examination, I discovered several ulcers in the bladder, which did not appear to be of recent origin. Strange to say, this patient has, for a long time, been of the opinion that he had an ulcer or ulcers in the bladder but could not persuade his physicians to agree with him.

This patient never had any hematuria, but he has noticed that, when his bladder was irrigated with normal salt solution or boric acid, not immediately afterward, but within an hour or as soon as urine accumulated in the bladder, he would suffer intense pain and burning. This was, no doubt, due to the fact that the exudate was washed off the surface of the ulcers by the alkaline solution and the contact of the acid urine with the denuded spots produced the pain and burning.

If the patient has a chronic urethritis, a stricture, a chronic vesiculitis, a chronic congestion or hyperplasia of the verumontanum, or, in fact, any other pathologic condition, this must be treated either before or concurrently with the prostatitis. There are two distinct objects to be aimed at in the treatment; the first is to remove from the prostate the pathologic contents of the glandular acini and excretory ducts. At the same time the hyperemia produced by the massage assists nature in carrying away abnormal products, which cannot be otherwise removed. The second is the restoration of a healthy circulation in the vascular and lymphatic systems of the prostate and restoration of the tonicity of the muscular fibers. If we succeed in the first object, viz.: the removal of the pathologic products present and the production of an artificial hyperemia; the second object, viz.: the restoration of a healthy circulation will also be accomplished.

The instruments which were designed by Feleki and Pezzoli for massage have been given up as unsatisfactory. I think it is generally agreed that a well-trained finger is the one indispensable instrument; as by it we determine the size, contour, nodulation, induration, etc., of the gland. Evidently, however, there seems to be a great variance of opinion among medical men as to the *modus operandi* of massage, and some even question the utility thereof. I cannot agree with Janet and Hogge, who contended at the Paris Congress of Urology that massage aggravates the condition, spreads the infection where it did not exist before, or converts a chronic case into an acute one, or by bursting of a retention cyst there may even develop an abscess of the organ. These dire results are, of course, possible, but extremely improbable. I have never seen any of these re-

sults occur. However, I have in a few cases noticed an increase of irritability to follow a too vigorous massage, but it disappeared in a few days.

In the place of massage Porosz of Budapesth has recently written a very interesting paper describing the application of the Faradic current, given in an interrupted manner, that is, the current is applied for a few seconds and then turned off for a few seconds, then reapplied, etc. He contends that the stimulation of the muscular fibers is sufficient to empty the glandular acini. This method may be a valuable adjunct to the treatment but when we consider that the muscular portion of the prostate only constitutes one-fourth of its structure, and that each tube system drains by a long, narrow, wavy duct into the urethra, which is not branched for the last centimeter of its course, we can hardly expect to express the contents except by physical means.

In performing massage it is essential to remember that the integrity of the rectal mucosa must be preserved. This is best accomplished by not rubbing the mucosa, but rather to make it move with the finger and to relax the pressure in moving to different parts of the gland. In the original Greek the word massage means "to knead," and that is what it should mean in massage of the prostate.

I have found it advantageous in many cases, where the prostate felt tense under the finger, to make steady pressure without moving the finger, over certain areas, as it takes the secretion an appreciable length of time to pass out through the small excretory ducts. The manipulation should begin in the center of the gland and cover first one lobe and then the other, being careful, of course, not to miss any portion of the gland, and if any nodules or areas do not seem to respond to the massage, to make gentle, steady pressure on them, and we will often be surprised to feel them yield under the finger and become softer. At the end of the massage a rolling movement of the finger from the periphery toward the center of the gland, completes the process and helps to express any secretion which may have been left.

As to the amount of pressure that should be applied in

massage, each case is a law unto itself. But, in general, it may be stated that in beginning treatment of a case, it is better not to make too much pressure at first and after one or two treatments we can determine about how much the prostate requires and how much the patient will stand. The intervals between the treatments should not be less than three days, in order to allow the hyperemia produced by the massage to subside. This hyperemia, of course, is one of the objects of the massage, as, by bringing more healthy blood to the part, we assist nature in the dissolution and removal of pathological products. In many cases one treatment a week is sufficient, especially in neurasthenics. Too much treatment has a tendency to keep their minds on their trouble, and that is one of the difficulties of the treatment. A patient came into my office a few days ago who told me that he had had chronic prostatitis for 10 years, had been under treatment all of that time, having been treated by over 20 different physicians. He has some excuse for being neurasthenic. Dilatation of the urethra by sounds and the posterior urethra especially by dilators, is a valuable adjunct to the treatment, as it does for the urethra what massage does for the prostate and assists in opening the occluded excretory ducts. I have not found hot rectal injections of much value, because very few patients can be persuaded to follow this method at proper intervals and long enough to be of benefit. Casper claims to have derived much benefit from the use of hot rectal injections of watery or oily solutions of certain Iodine and Bromine salts. The treatment of prostatitis by the injection of antigonococcic serum or bacterial vaccines has been disappointing. However, I believe if it were possible to employ an autogenous vaccine in each case, the result might be different. Any one who has attempted to obtain from the prostate the secretion for bacteriological purposes, without the accidental contamination of germs from the urethra, will bear me out in the statement that it is a difficult procedure, and to be of value, must be accompanied by controls taken from the urethra at the same time. The prostate, of course, harbors bacteria, but not to the extent usually supposed. In this connection it is interesting to note the results of Notthafft's experiments in a large

number of cases of chronic gonorrhea. He found by carefully excluding contamination from the urethra, that the prostate seldom harbored the *Gonococcus* longer than one year after the last infection, and never longer than three years. Young and Geraghty also made experiments, with the same careful technique, and found in some cases of chronic prostatitis no bacteria of any kind. In the majority of the cases, bacteria were found, but they were staphylococci bacilli, probably of the colon type and occasionally streptococci. In administering bacterial vaccines, it is, of course, presumed that we are sure of the identity of the offending organism. In contradistinction to the prostate being the harbinger of comparatively few bacteria, the posterior urethra seems to be a very prolific field for them. Tano has found in a study of 30 cases of posterior urethritis, 29 different varieties of bacteria. Of course, in cases of prostatitis which are of comparatively recent origin, bacteria are usually present and are an important factor, but, as the condition becomes more chronic, the importance of the bacteria declines and we have to do mostly with the damage which is the result of a previous bacterial invasion.

After every massage a copious urethro-vesical irrigation is absolutely imperative, and failure to carry this out in a proper manner has no doubt been responsible for some of the unfavorable results, which has wrongfully been attributed to the massage. During the massage the expressed secretion usually flows out at the meatus, but occasionally considerable of it flows back into the bladder. This is explained by the fact that the external sphincter, which is composed of the compressor urethra muscle and the muscular fibers surrounding the urethra at the apex of the prostate, are stronger than the internal sphincter and contract more vigorously. Failure to irrigate after massage may be responsible for the production of urethritis, bacteriuria, or even cystitis. The practice of having patients come for treatment with a full bladder, then massaging the prostate and having them urinate afterward is not good technique.

The irrigating apparatus should be as near sterile as possible, and the tips should be boiled for each patient. The necessity of having our irrigating fluid absolutely sterile is well illus-

trated in the case above cited, of the physician who contracted prostatitis by using water that was not sterile. In the selection of the remedy to use in the irrigating fluid, it may be noted that all germicides are irritating to the mucosa, and the more germicidal they are, the more irritating they become. Some cases will not bear any germicides at all, and in these cases a sterile, normal salt solution is indicated. There is probably no remedy that has stood the test of time as well as Silver Nitrate. The usual tendency, unfortunately, is to make the solution too strong. It should not be used stronger than 1-10,000 at first, and cautiously increased, and I recently had to begin a case with 1-20,000, which was easily increased later.

Silver Nitrate solutions should, of course, always be made with distilled water. Potassium Permanganate is also a very good remedy for use in irrigations, although it is rather disagreeable on account of its staining qualities. I think some of the failures and disagreeable results attributed to it may be ascribed to improper technique. A strength of 1-5000 is sufficient for most cases. In no case should the strength exceed 1-2000. Stock solutions should be strained, to insure a perfect solution, and none of it should remain in the bladder, even if we have to withdraw it with a catheter. After using a strong solution, I always flush out the bladder with plain sterile water. Mercury Oxycyanide 1-5000 is very good, but I have practically given it up on account of the difficulty in getting a perfect solution. Mercury Bichloride is a popular remedy, and while it cannot be used in a strength that is germicidal, still it seems to have a very salutary effect on the bladder and urethra. For irrigations it should not be used stronger than 1-25,000, and in most cases 1-50,000 is better. It is very convenient, as 20 C. C. of a 1-1000 solution added to a liter of water, makes a solution 1-50,000. The ideal solution is Nitric Acid, C. P., used in a strength of 1-2000. It is cleanly and convenient and a good oxidizing antiseptic. Seven drops added to a liter of water, with a glass dropper, makes a solution 1-2000. If chronic urethritis is present as a complication, Zinc Sulphate may be added to the Nitric Acid solution, in a strength of 1-500 to 1-200. As Zinc Sulphate is easily soluble, I think we

get better results by adding the crystals directly to the irrigating fluid, than by using a stock solution. In most cases, there is little difficulty in filling the bladder by hydrostatic pressure, but occasionally we have to fill the bladder through a catheter, which is then withdrawn and the fluid voided, thus flushing the urethra. Where the patient is not able to completely empty the bladder, as in cases having residual urine, great care must be taken not to leave any irritating fluid in the bladder.

In conclusion it may be stated that we should be very careful in promising a too speedy cure. Chronic prostatitis is essentially a chronic disease and requires chronic treatment. And secondly, it is very essential that we do not overlook complications which are so often present, because the failure to recognize and treat them accounts for many disappointments.

KEENAN BUILDING.

A FURTHER REPORT ON ANTIGONOCOCCIC SERUM AND ANTIGONOCOCCIC BACTERINS¹

By GEORGE KNOWLES SWINBURNE, M. D., New York City.

EARLY in January of this year, Dr. Seaborn, of Parke, Davis and Co., called on me and asked if I were willing to experiment with some new antigonococcic serum which they were making: viz.: two forms of modified serum from the ram, called "ram A" and "ram B." And also a new serum made from the horse which latter, if proving successful, would probably reduce the cost of the serum. This I agreed to do, and also asked for further supplies of the bacterins, as I wished to continue my work with these. I understood that the horse serum was made in the usual manner in which the regular ram serum is made, but that ram A, and ram B was a modification, the process of which has not been revealed to me at the present writing.

In order to cover as large a number of cases as possible, in addition to those treated at the dispensary, two of my assistants, Dr. Weissman and Dr. Ackerman, agreed to use them in appropriate cases in private practice. They were used in about twenty-two cases at the dispensary. Dr. Weissman had fourteen cases, Dr. Ackerman eight cases, and I have also used horse serum in some eight cases in my own practice.

The cases in which it has been used are epididymitis, acute and chronic prostatitis, acute and chronic rheumatism; also in a class of cases which have proved of great interest, viz.: pyosalpinx cases discharged from hospitals, after operation was declined by the patient. It has also been used in a few cases of chronic gonorrhea, those which have resisted a variety of methods of treatment.

As far as the different serums are concerned, we have been unable to note any special difference in the results, though all three of these seem to have a value equal to that of the original ram serum.

¹ Read before the American Association of Genito-Urinary Surgeons, Washington, D. C., May 3rd and 4th, 1910.

As far as local reaction is concerned, there has been the usual percentage of urticaria following several days after the administration. In many cases there has been no local reaction whatever except a certain amount of discomfort at the site of the injection, for a few hours following.

In the case of the bacterins, these were started at twenty millions and increased to one hundred millions and then five hundred millions. There has not been a single case that I can recall where there was any local reaction, or any of the untoward reactions which were reported when the bacterins were first used.

In the work that I have done this year I see no reason for changing the opinion which I expressed a year ago; that acute complications were given prompt relief by the serum and that it acted in almost all of these cases as a specific.

It has been marked in cases of acute gonorrheal rheumatism occurring in primary attacks and certainly continues to act as a specific in these cases. Some of the cases are subject to relapses from one cause or another, but as a working rule, I prefer to use the serum first and then continue treatment later with the bacterins as a possible prevention of relapse. At the same time I do not think there is any hard and fast rule. I have seen cases do well with the bacterins and not so well with the serum and vice versa, and I think we have to be guided by results as to which is best to use.

That this therapeutic measure is of real value may be judged from a case of gonorrheal rheumatism which I have in my private practice; a man, A. L., a machinist by trade, who came to me with gonorrheal rheumatism and acute urethritis. He had had several attacks of gonorrhea and with each attack he had had rheumatism, mainly in his feet and knees, and each time he had been prevented from working for a long period of time—six months to a year, and feeling the effects of the trouble from a year to a year and a half. He came to me on February 4th; he had had his rheumatism for two weeks, and consulted me for that difficulty; he had not been working during that time. In addition to the local treatment I used the horse serum at first. He called every other day for a period of three

or four weeks, and with a rapid amelioration of his pain, so that locomotion became easier and he was able to reach my office more readily but not yet able to go to work. Then I turned to the bacterins and have used these up to the present time and at longer and longer intervals. After treatment of about four weeks he was able to do some work, and in the course of another week or so he was doing a full day's work. He volunteered the statement that never before had he recovered his ability to work so quickly, and had felt that when his disease came on he was in for another long period of inability to work. To-day he has practically no pain except in the feet, and not enough to interfere with his being at work.

A case of primary gonorrhea which remained anterior, but which seemed to be of a severe type, in a young man of twenty-five. One morning, about a week ago, he came to me with pain in his left wrist. I waited 24 hours, when the pain had increased; there was some swelling, and I waited no longer, but gave him an injection of horse serum. The next day the wrist was much better, in fact, there was no swelling, there was no spontaneous pain, only slight weakness and pain on movement.

The second day following the first injection I gave him the second of the horse serum and on the day after that there was scarcely a trace of the trouble.

I have two cases of acute prostatitis, one that existed seven days before coming to me, and the other four days. The case existing seven days had tried to keep at work and worked up to the end of his strength; came to me suffering very greatly. The prostate completely filled the rectum; on inserting the finger was exquisitely painful; there was a certain amount of obstruction to the urinary flow. I gave him horse serum and sent him home to bed. I was called up the following day and found that he had a painful retention of urine which added to his pain. I drew off his urine and gave another injection of serum. The following morning I had to draw off his urine again but from then on he steadily improved, and he was able to come to the office. An examination of the prostate found it as large as at the first examination, but he had no pain, practically able to

empty the bladder and I then changed from serum to the bacterins. The patient went on to steady improvement.

The case which came to me on the fourth day, was a man of about 32. Thirteen years ago he had had an attack of gonorrhea, causing an epididymitis on the left side. He had no attack since until very recently, about two weeks before coming to me; he felt that something was wrong and consulted a physician. There was no discharge before he went to the doctor's office. This doctor took a smear of a minute amount of discharge and then proceeded to use bougies in the urethra. After this he examined the slide under the microscope, he told the patient he had a gonorrhea. Under his treatment the gonorrhea rapidly increased and then gave symptoms pointing to prostatitis. On the fourth day of pain he came to consult me. The prostate was as large as in the former case and swollen and painful. I gave horse serum daily for six days. The first two days he stayed in bed, although he got up and came to my office for his treatment. The third day he returned to work. Then I began to use the bacterins every other day, and in the course of about a week he began to have swelling in the left epididymis on the site of his old trouble; it was painless. There was slight tenderness but I thought it was temporary. It steadily grew worse, however, and I continued the use of the bacterins, but after 48 hours of this the swelling and pain had increased so much that I changed back to the horse serum with rapid amelioration of pain and swelling, so that in this case it seemed to me that the serum was of greater value than the bacterins.

One case of great interest to me was that of a young man, 27 years old, whom I have treated for several attacks of gonorrhea. His primary attack was in 1907. He came to me on the first day of his trouble and was discharged cured at the end of the second week. A year later he had a second attack which was promptly cured in the same length of time. A third attack the following year he attempted to treat himself and came to me when he began having posterior urethritis and was a long time in recovering. When he did get well he seemed to be subject to relapses. In making an investigation to note the cause

I found to my surprise that he had a tight stricture about one-fourth inch in front of the compressor muscle. I knew that it could not possibly come from his attacks of gonorrhea. Going over his history I found that 15 years before, when he was a small boy, he had fallen astride a fence or beam and had suffered somewhat; he was not clear about this but seemed to have had a hard time. It seemed like a traumatic stricture. He was carefully dilated until I got him up to 24 French. This covered a period of some months when he got an attack of epididymitis. As soon as this subsided, I waited for some time before proceeding with the dilatation in order to make sure that there was no further trouble. But the first time I passed the sound through the stricture there was a return of his epididymitis. I then put him on bacterins, beginning sometime in February. After the epididymis became normal I was able to return to the use of the sounds without causing a relapse.

Taking up Dr. Weissman's cases, of which there were fourteen: There was one case of chronic rheumatism, two of prostatitis, three of epididymitis, one relapsing epididymitis, one of acute prostatitis, and six cases of pyosalpinx.

The case of rheumatism is of interest: A. R., traveling salesman; had gonorrhea three times in ten years. All except the last treated by Dr. Weissman. He was laid up in the hospital at Pittsburg with gonorrheal rheumatism of the right knee joint. Was kept in bed for two months, and as soon as he was able to leave he came on to New York and consulted Dr. Weissman, arriving there March 10th. He was given the serum ram B. There was marked improvement after the first injection. On March 13th and 16th he received serum ram B. At this time he was able to walk without difficulty and resume his traveling, returning to the city each week for some three weeks, when treatment seemed no longer necessary.

Another case, A. S., aged 27, had his first attack of gonorrhea a year and a half ago. Second attack seven weeks ago. Acute prostatitis for three weeks; epididymitis for one week. March 3rd, received injection of ram B. There was so much pain on urination the patient was sent to bed. He received three more injections of the ram B three days apart, with

rapid improvement of the symptoms. The three cases of epididymitis were rapidly improved when ram B was used.

The two cases of chronic prostatitis were under treatment for a long time. One, A. F., aged 24, had gonorrhea five years ago in Russia, practically under treatment ever since. Under Dr. Weissman's treatment for one year. On February 1st he began the use of bacterins. Treatment every few days until April 17th. There was steady improvement in the patient's condition which he had not shown before.

The other case, I. B., had gonorrhea for three years. Had been under treatment for a long time without improvement. The bacterins were given February 11th until April 15th, with greater improvement than the patient had had before.

The most interesting cases of Dr. Weissman's report, however, are those of pyosalpinx. For a long time I have believed that these cases could be greatly benefited by the use of serums or bacterins, but have had very little opportunity of making use of them in such cases.

The first patient was a woman aged 28; two children; infected by her husband a year before. She gave a history of being pregnant probably for some three months. She was suffering great pain. Examination showed a large swelling in the Douglas cul de sac; pain on pressure. Miscarriage was threatening, there was bleeding. March 4th, ram B was given, patient sent to bed. On March 6th and 9th she came to the office, but returned to bed. The bleeding diminished. On March 15th, 18th and 22nd, she received the ram serum; there was no more bleeding. There had been a steady diminution, very rapid at first and slow afterwards, of the swelling and accumulation in the cul de sac. On March 27th the patient was up and at work, and on April 6th she felt no longer in need of treatment.

The second case, D. B., aged 26, was infected with gonorrhea three years before; one daughter; had two miscarriages; gonorrheal rheumatism for two and a half years. Examination showed endometritis, chronic salpingitis, pain and swelling in hands and feet. She was given the bacterins beginning with 20 million running up to 500 million. From March 20th to

April 15th, there was steady improvement in the rheumatism and the pain in the abdomen. Note made on April 7th, states: "Patient feels much better in lower part of abdomen." And on April 15th: "All symptoms gone except in the feet."

The third case, M. S., aged 24, two children. Was infected by her husband, who, by the way, was one of the cases treated at the dispensary. He told us at the dispensary that his wife was lying in a hospital and that the doctors advised an operation as soon as she could gain strength enough to stand it. Later he told us that the patient had left the hospital, not wishing the operation and asked what she should do. Dr. Weissman kindly offered to treat her at his office. He found a pus tube on the left side. Patient received ram B serum February 9th, 11th, 16th, and 20th. Improved steadily; on the 20th, note was made: "Left tube can hardly be felt. No pain on examination." At this time she voluntarily left treatment saying she could do her work without any trouble and saw no reason for further treatment.

The fourth case, A. C., aged 29; one child, gonorrhea six years before, had recently been in hospital where operation was advised but refused. On examination there was pus in the urethra, pain and frequent urination; endometritis, infected left ovary. She was given bacterins from February 15th to 26th, when note was made: "Pus in urethra not visible, slight swelling of uterus and ovary; gave up treatment, because she considered herself well."

N. E., aged 21; pus tube on right side; just came from hospital where she was discharged because she refused operation. Injections were given from February 20th to March 2nd. Examination showed the tube reduced; no pain; she refused further treatment.

The last case, A. G., aged 19; gonorrhea a year and a half ago. For three months she has had pus tubes. All this time she was in a hospital at Plainfield, N. J., where operation was advised but refused. Came to the city to consult Dr. Weissman. In February he used ram A serum, giving it on the 11th, 12th, and 14th, with marked improvement. He did not see her again until March 20th when pain had started up again.

Examination showed right ovary and tube as one large tumor. She was given serum ram B March 30th to April 5th, getting four injections with marked improvement and reduction in size of tumor. She left treatment and has not been seen since.

In this connection I wish to report one case, the wife of an old patient of mine who came to me with what she thought was leucorrhea. That week was horse show week; she attended the horse show, had late suppers, and at the end of the week came complaining of pain in the right side near the region of the appendix. I made out that not the appendix but the right tube and ovary were affected. Sent her home to bed and had a nurse in attendance. This was on Wednesday. On Saturday evening I was called to see her and found that she had grown steadily worse. Temperature 103, severe headache, severe pain on the right lower side of abdomen. In fact her symptoms were such that had I not seen her before and known what she had, I would have believed that she had appendicitis and that it would be dangerous to wait until morning before urging an immediate operation. Knowing what was the trouble, I gave her an injection of the ram serum. The next morning when I called, the nurse told me that in half an hour after I had left the pain had entirely gone; the patient remained awake until four o'clock in the morning when she dropped off to sleep. At this time the swelling had subsided considerably. There was very little pain on pressure. The following day the patient received another injection of the serum and also one two days after that,—three injections in all. By the fourth day there were no more symptoms. The patient dismissed her nurse and the next day got up and went out. I continued to see her about once a week for several weeks when she ceased coming.

Dr. Ackerman's cases were eight in number; two acute epididymitis, 2 acute prostatitis, one relapsing epididymitis, 2 chronic prostatitis, and one case of rheumatism.

The case of rheumatism is of interest.

J. S., 24 years of age, had gonorrhea three years ago, had double epididymitis a year ago and six months ago. On March 11th the patient presented the following: prostate was normal,

the urine clear, there was no discharge. Patient complained of rheumatic pains over the entire left half of the body from ankle to shoulder blade. There was a distinct sense of heat to the hand. On March 11th he received bacterins five hundred million, this was continued until April 5th, during which nine treatments were given. The pains rapidly left and he became entirely well. The point of interest in this case is that previous to March 11th, the patient had had several injections of the regular ram serum without any effect whatever.

One other case of Dr. Ackerman's is of interest.

M. B., 20 years of age. Gonorrhea two years before; a year ago, double epididymitis. On March 21st, he complained of pain in the left cord, evidence of threatening epididymitis. He received ram A on March 21st and 26th. The epididymitis did not develop.

64 E. 56TH STREET, N. Y.

COMPLICATIONS AND SEQUELAE OF GONORRHEA IN THE PROSTATE

By W. P. HERRICK, M. D., New York City.

IT simplifies our conceptions to regard posterior gonorrhea and catarrhal gonorrheal prostatitis as synonymous, and closely agrees with the facts. The salient features of posterior urethritis are those of the prostatitis. The membranous urethra with its few mucus glands and simple epithelium gives few or no symptoms. When, however, the mucus membrane forming the mouths of the prostatic and ejaculatory ducts, and continuous with their lining, and that of the trigone has been attacked, we have the cloudy second specimen with comma shaped shreds and the increased frequency of micturition, which occurs in from 60-90% of all cases of gonorrheal urethritis.

It is not with simple anterior gonorrheal urethritis, that the difficulties, dangers, and discouragements are encountered; they are in posterior or prostatic gonorrhea. Systemic infection is now believed to occur through the prostate. Transmission to the female most often occurs from the germs lurking in a subacute or chronic prostatitis, as sexual intercourse is usually too painful or impossible in acute gonorrhea. Again, the infection must traverse the prostate by way of the ejaculatory ducts, to reach the seminal vesicles or epididymis.

Thus in gonorrheal urethritis or its complications, it is of paramount importance, and as the prostate has been called the heart of the sexual system, so is gonorrheal prostatitis the heart of the subject of genito-urinary gonorrhea.

The recent rapid advance of our knowledge lends an added zest, and each can contribute his quota. It is in view of this, rather than with the idea of completeness or finality, that this brief outline has been undertaken. We shall consider:

First:—The Complications of the Acute Infection.

Second:—The Sequels in Chronic Gonorrheal Prostatitis.

(Read in the Symposium on the Complications and Sequelæ of Gonorrhea, at the Section on Genito-Urinary Surgery of the New York Academy of Medicine, May 18, 1910.)

Prostatic Complications of Acute Urethritis

Catarrhal Prostatitis. We have noted the onset in the posterior urethra. The germs having attacked the prostatic or ejaculatory ducts, the inflammation may be catarrhal, purulent, pseudo-membranous, or mixed, and tends to persist longer than the urethritis proper. The ducts in emptying themselves may infect the urethra recurrently, thus tending to stricture or other complications in the urethra, bladder, etc.

Follicular Prostatitis. The process may resolve, or advancing through the prostatic ducts, the acini and gland follicles may become similarly inflamed, giving at times a nodular sensation in rectal palpation.

Parenchymatous Prostatitis. The above process may resolve, may become cystic or purulent, or with congestion and infiltration extend into the peri-glandular parenchyma.

Phlegmonous Prostatitis. The parenchymatous infection may resolve, may become chronic, or form single or multiple abscesses, destroying a part, or all, of one, or both lobes, and rupture into the urethra, rectum, perineum, or bladder. The pus has been known to follow the cord into the inguinal region, or rupture through the obturator foramen, ischiatic foramen, into the abdominal cavity, the space of Retzius, or point at the border of a false rib. There may be infiltration of urine, gangrene, chronic septicemia, chronic suppuration, fistula, stricture of the rectum, etc. There may be thrombosis of the periprostatic or prostatic veins, pyemia and death.

Such briefly are the pathological complications of acute gonorrhea of the prostate. Their inter-relations as regards diagnosis, symptoms and treatment alone are germane to this paper. Remembering, then, that the forms merge one into another, these following four clinical pictures may aid:

1. *Catarrhal*, whose symptoms dominate the picture termed posterior urethritis.
2. *Follicular*, with intensified symptoms, especially pain at the end of micturition, and nodules sometimes palpated by rectum.
3. *Parenchymatous*, with its sense of fullness in perineum,

defecation and urination increasingly difficult, even to retention demanding catheterization. The prostate felt by rectum, is evenly swollen, tense or edematous and sensitive to pressure. These may be with or without fever, and its constitutional symptoms.

4. *Phlegmonous*, when abscess has formed, operation is demanded before it has become extra-prostatic. *This is indicated.* (a) by a sense of pressure and swelling in the perineum and rectum, and pain often throbbing in character, which may radiate to the glans penis, thighs and across the back. Defecation may be very painful, and retention may demand catheterization.

(b) *Exquisite sensitiveness of the prostate*, which may be very large, or with a point of extreme tenderness, or even fluctuation, and sensitiveness of the neighboring parts.

(c) *Fever*, which may be absent, may be preceded or accompanied by chills, which may only have an initial rise, or continue very high.

When to operate is often a matter of judgment, because it is a debatable question whether operation upon the milder forms of persistent prostatitis would not help to terminate a condition which takes a long period of non-operative treatment to cure, if at all. But these considerations will help, and in determining abscess, a leucocyte and differential count may aid. Fortunately the phlegmonous cases are comparatively infrequent, as shown by only two cases requiring operation on Dr. Squier's service at the Post Graduate Hospital, out of the large number of cases treated at that clinic during the past year.

In *avoiding complications*, not to manipulate, or use instruments during the acute inflammation, except for retention, is axiomatic.

Clinically, we know that sexual intercourse or seminal emissions are apt to re-light a urethritis or precipitate a more acute prostatitis. During ejaculation the prostate is contracted and the contents of the ducts forcibly expelled into the urethra, accounting for an acute exacerbation of the urethritis. The ducts expand during the following relaxation, and infection may

be drawn deep into the prostate, accounting for its acute inflammation.

Should the parenchymatous picture present, rest in bed, with light, even milk diet, an alkali or urinary antiseptic and hot or cold applications or sitz baths, added to the routine treatment are demanded, while pain and dysuria may require opium or its alkaloids.

In phlegmonous prostatitis the *choice of operation* is among three methods.

(1) *Extra-urethral*, through the perineum and capsule.

(2) *Intra-urethral*, through an external opening in the Membranous Urethra.

(3) *Perineal Prostatectomy*, partial or complete. These cannot be discussed here, but we feel that the last will appeal to most of us as very radical, more dangerous than prostatectomy for hypertrophy as operating in an acutely infected area, and possibly rendering sterile men in their comparative youth.

We should also remember that *recurrent urethritis* may be caused by repeated rupture of small follicular prostatic abscesses into the urethra, or *persistent urethritis* by an abscess cavity draining imperfectly into the urethra.

The Sequels in Chronic Gonorrheal Prostatitis

The tendency of acute gonorrheal prostatitis is to become chronic, rather than to become phlegmonous, or to resolve.

Chronic prostatitis is a question of *degree* rather than of *varieties*, and may show no symptoms, or only a few shreds in the urine. For this very reason such an individual may unconsciously be a menace to himself and others, as a carrier of infection. This is the sequel of first importance.

Here we once more face the moot questions: "Is Prostatic Gonorrhea curable?" and "When is Urethral Gonorrhea cured?"

Von Notthaft, examining 120 cases, found gonococci in the prostatic secretion in 74% of the cases in the second half year after infection; in 50% of those in the third half year; in 18% of those in the fourth half year; in 6% of those in the third year; and after that no gonococci were found. *Mixed*

Infection was present in some cases in the second half year, and in the fourth half year there were no cases of simple gonococcic infection.

Clark (J. B.), in eight cases, five of which were of less than eighteen months' duration, found no gonococci by microscope or culture. Seven out of eight showed *Staphylococcus Albus*, however, and one gave no growth.

De Santos Saxe, in 108 cases, with often repeated examinations, found gonococci 6 months after infection in only 28.7%, but staphylococci in 74% of the cases. (*N. Y. Medical Journal*, Oct. 2, 1909.)

Thus, it is the persistent *mixed infection* which renders the answers to the questions propounded difficult, and treatment discouraging. They are answered by the physical and functional examination of the prostate.

1. *In the Physical Examination* we consider the (a) *Size*, whether it is enlarged or atrophic. (b) *Sensitiveness*, which may be absent in the abnormal and present in the normal, but which is more often present abnormally. (c) *Consistency* in general, and whether there are hard and soft areas, or nodulation, or cicatrices. (d) *Contour*, or form in general.

The palpatory signs may all be negative, in any event, we must rely ultimately upon the *gross* and *microscopic* examination of the prostatic secretion.

This is thicker than normal, often flaky and yellowish or greenish yellow from the addition of pus.

Microscopically, added to the usual picture, are *pus cells*, varying in number, discrete or in clumps, in which gonococci may or may not be found by examination or culture.

Epithelia more or less degenerated from the ducts and alveoli may be present, and fat globules free or enclosed.

The Corpora Amylacea, however, are much less often seen than normally, and *Lecithin bodies* diminished or absent. The return of the latter has been claimed as a favorable sign, and as promoting motility of the spermatozoans.

When the urine becomes clear, and no pus, or gonococci are found in the prostatic secretion, after repeated examinations and possibly culture; the free use of alcohol may be allowed the

patient, or silver nitrate instillation used, and if examination again is negative, we have no evidence that the patient is still infectious, and sexual intercourse may be allowed. In these cases we cannot deny cure, nor can cure be positively affirmed in every such case, yet even in a very considerable number of patients who have a few shreds in the urine, and persistent pus cells in the prostatic fluid, while there cannot be said strictly to have been a cure, there is good evidence that a large number are no longer infectious. This is corroborated by clinical experience as well as by the investigations cited above.

The matter may be summed up by saying that after all tests have proved negative, the large majority of patients with a few shreds and a few remaining pus cells in the prostate are free from gonococcic infection.

2. *The sexual sequels* of prostatitis may include the absence of normal sensation at the moment of ejaculation, or pain with the seminal discharge, but the most important sequel is *sterility*.

The ducts becoming stenosed by cicatricial tissue, the follicles to a greater or less degree cystic, and filled with serous, or sero-purulent matter, the prostatic secretion becomes altered, and may only slightly, or not at all stimulate the spermatozoa to movement. Fürbinger, on observing this, in the semen of patients, added normal prostatic fluid, and they became motile. With phlegmonous or operative destruction of the glandular tissue, the absence of prostatic fluid may produce a similar result. Again, cicatricial tissue may close the ejaculatory ducts. In these sterility results.

Premature ejaculation also may be caused, or erection rendered impossible, producing *Impotence*. Again, occasionally *prostatorrhœa*, or oozing of the prostatic fluid without ejaculation during defecation, etc., may occur, which causes the patient great anxiety, but which is usually of little significance.

3. *Urinary Sequels*. Frequency or difficulty of micturition is most often observed, and may be accompanied by pain, or the feeling that the bladder is not completely emptied. This is sometimes combined with a chronic cystitis. Cicatricial tissue has also narrowed the neck of the bladder causing more or less

obstruction to micturition. Chronic gonorrheal prostates, more or less congested, with distended glands and increased connective tissue not uncommonly cause more or less obstruction to the urinary flow with residual urine; and as we know, Ciechanowski, in an exhaustive manner, advanced gonorrheal prostatitis as a probable cause for senile hypertrophy of the prostate.

Obstruction from proved gonorrheal prostatitis, however, occurs most frequently in middle age, while senile hypertrophy occurs between sixty and seventy. In a very large number of the latter no history of gonorrhea or old lesions, as epididymitis, stricture, etc., is obtainable, and in many of these patients there are more than ordinary reasons for believing them truthful.

But most important is the fact that the cicatricial tissue of chronic prostatitis ultimately tends to atrophy, causing stenosis of the vesical neck, and does not explain the apparently true, non-malignant, hypertrophy in many cases of senile enlargement, whose cause still remains unexplained.

As a predisposing cause to malignancy of the prostate, Young, in 111 cases, found 30 who acknowledged precedent gonorrhea, in 25 there was no record, and sums up the etiological position of gonorrhea here as similar to that in senile hypertrophy.

4. *The Nervous Sequels* may be local or general.

(a) *Local*, affecting the sensation or function of the prostate. Several of these have been mentioned under sexual sequels. Brevity is best served by mentioning here only hyperaesthesia, causing frequent nocturnal erections, emissions, etc. This is perhaps most important, as the most readily relieved, by the applications of strong silver nitrate solution to the verumontanum.

(b) *General*, e. g., referred pains and paraesthesiae, with or without functional disturbance of the nervous system. Among the former may be mentioned, pains of the back, hips, or thighs, which may simulate renal colic, lumbago, or sciatica; or of the groin, testicles or rectum, which may simulate varicocele, or hemorrhoids, often with constipation; pain of the perineum or the penis, or over the bladder or the sacrum; or

paraesthesiae of the rectum, perineum, penis, or scrotum, and even pruritus ani. They are explained by the painful stimulus from the prostate, passing along a nerve fibre to its segment of the cord, which refers the sensation to another area supplied by fibres from that segment or segments.

Further Functional *Nervous Disturbances* dominate the picture termed neurasthenia and range from headache and mental depression, through perverted ideas to hypochondriasis, and may even simulate dementia precox.

In closing it is both just, and a pleasure, to acknowledge Dr. J. Bentley Squier's kindly criticism and help, without which this would not have been written.

Such are the outlines of the *Complications and Sequels of Gonorrhea in the Prostate*; if your interest has been aroused, the picture may be confidently left to you for completion, and this paper will have fulfilled its mission.

56 EAST 53RD STREET.

Review of Current Urologic Literature

ZEITSCHRIFT FÜR GYNÄKOLOGISCHE UROLOGIE

VOL. II., No. 2, (MAY, 1910)

1. A Case of Injury to the Ureter. By J. Veit.
2. Implantation of the Ureter into the Bladder. By Dr. Rissmann.
3. Decapsulation of the Kidney in Puerperal Eclampsia. By Albert Sittel.
4. Eclamptic Oliguria, with a Criticism of Renal Decapsulation in Eclampsia. By W. Zangemeister.
5. Renal Decapsulation in Eclampsia. By W. Stoeckel.
6. Renal Decapsulation in Eclampsia. By Otto Eisenreich.
7. Contribution to the Diagnostic Value of Ureter Catheterism and to the Treatment of Chronic Pyelitis by Means of Repeated Pelvic Irrigations. By F. Engelmann.

1. INJURY TO THE URETER.—Veit related a case of pelvic carcinoma in which he deliberately cut through the ureter. The cancerous growth was at first confined to the uterus, and that organ was removed. Some months later the patient returned with a recurrence and laparotomy showed that the recurrence had taken place in the cellular tissue and the lower portion of the ureter. The latter was sectioned above the carcinomatous environment and the tumor removed. The ureter was furthermore tied at some distance above the cut end, in order to avoid the spread of infection to the kidney. In this case it was better to tie the ureter than to spend time in removing the kidney. The patient survived the operation, but the time of observation was too short to record a definite result.

2. IMPLANTATION OF THE URETER INTO THE BLADDER.—Rissmann in speaking of this operation considered the following points, which, if neglected, cause imperfect results. No sutures should enter the lumen of the ureter. The best way for securing room for the suture is the method advocated by the author of contracting the canal to a point. In difficult cases the bladder should be invaginated firmly against the end of the ureter by means of silk sutures. In secondary implantations both kidney and ureter should be examined before the suture is applied.

3. RENAL DECAPSULATION IN ECLAMPSIA.—Sippel considers decapsulation as indicated in eclampsia when other measures, such as emptying the uterus, promoting diuresis and diaphoresis, fail, when convulsions or coma continue after the labor, and when the renal function is markedly affected. He doubts the value of simultaneous observation of the freezing point of blood and urine, so far as indications for the operation are concerned. The freezing point of the blood of eclamptics apparently remains normal. So far as results of decapsulation are concerned, the author collected 38 cases in 1909, to which a number have been added since then, making in all 46. Twenty of these women died but in four cases the deaths were due to other causes after the eclampsia had disappeared. There were, therefore, 46 cases with 30 recoveries and 16 deaths. This is an encouraging result, when we consider that the cases were desperate ones in which all other methods failed, and which probably would have ended fatally without decapsulation.

In over 80% of the cases the operation was followed by a marked improvement in the urinary excretion; in the remainder no improvement occurred and all these patients died. In some instances the diuresis after decapsulation was truly remarkable. It is difficult to say why this effect remained absent in some cases, but further investigations will probably show the reason for this failure. In Sippel's opinion decapsulation will occupy an important position in the future treatment of eclampsia, and, in fact, we are even at present obliged by the favorable results to try this method when other treatment fails. The cases reported teach us, however not to wait too long before operating. By waiting too long we risk failure in getting diuresis after the operation, and this diuresis is the keynote of success in this work. Early operation, therefore, is indicated as soon as it is found that other methods fail.

The diuresis is probably the result of an improved capillary circulation in the kidney, as the result of decapsulation. This improvement is too transient, and for this reason the diuretic effect is also transient. The favorable effect of decapsulation is surely not due to the formation of adhesions and the growth of new vessels, as Edebohls supposed in his work upon chronic nephritis. The probabilities are from the clinical results of decapsulation that eclampsia is not due to a toxæmia, resulting from the liberation of poisons which have been stored up somewhere in the body, but that it is the result of a pathological urinary retention.

4. ECLAMPTIC OLIGURIA, WITH A CRITICISM OF RENAL DECAPSULATION IN ECLAMPSIA.—Zangemeister is an opponent of renal de-

capsulation in eclampsia, and asserts that as yet there is no proof of the efficiency of this operation, the cases reported thus far not being by any means convincing. Edebohls used decapsulation in eclampsia, firstly because he compared the renal changes in eclampsia to those occurring in nephritis; and, second, because he considered disturbances in the quantity of urine excreted as responsible for the appearance and the outcome of attacks of eclampsia. Both of these ideas are false. Anatomically the eclamptic kidney had nothing to do with the kidney of acute or chronic nephritis, at least in the majority of cases. The fact that pregnant women with true nephritis are by no means more frequently the victims of eclampsia than other women, also speaks for a difference in the two conditions. In function the eclamptic kidney also differs markedly from that affected with nephritis. The author's investigations, which were confirmed by others, have proved conclusively that the oliguria which occurs in many cases of eclampsia has nothing to do with the appearance or the outcome of the attack. Oliguria is indeed a frequent accompaniment of eclampsia, which seems to depend upon the same factor as the convulsions themselves, yet the presence or absence of the oliguria, its duration and its intensity, have nothing to do with the etiology of the eclampsia. Zangemeister studied the excretion of urine in 56 cases of eclampsia. He finds in the first place that the effect of renal decapsulation, if any, does not lie in an increased secretion of urine. In the first place this diuresis is not necessary to bring about a disappearance of the eclampsia. In the second place, we cannot produce diuresis frequently for the simple reason that the quantity of urine was never diminished in the first place. In the 56 cases studied, the quantity of urine was below normal in 21, during the onset of the attacks. In six cases the quantity of urine excreted did not diminish during the attack, and of these cases three were fatal. When the quantity of urine was diminished it naturally increased as convalescence set in. An increase of urinary excretion frequently occurs about the time of the cessation of convulsions, but these two phenomena also occur independently. Thus, in 16 cases, the convulsions ceased before diuresis occurred, while in four cases the convulsions ceased only after diuresis had occurred. Therefore, oliguria disappears more frequently after the convulsions have ceased. It is indeed not rare to find that oliguria and even anuria occurs only after the attacks have already ceased. Such a case is reported in detail. The conclusion is that we are not justified in saying in any case that the disease is about to disappear when there is an increase or a decrease of urinary secretion. In ten cases, the quantity of urine increased considerably during the

attack; in twelve other cases the oliguria, not only did not mend, but even became more marked, although the convulsions had ceased. The oliguria lasted from 5 to 24 hours longer than the convulsions in these cases.

The prognostic value of anuria or oliguria before the emptying of the uterus cannot be regarded as serious. Of 48 cases in which convulsions occurred before labor, there were ten deaths, 21%. Of these, 18 cases showed oliguria or anuria, and of these 18, four died, or 22%. In other words, there was no difference in the mortality of the cases with and without oliguria. Oliguria may also occur after labor, but even in these cases the mortality is not markedly higher. Of 22 cases, six were fatal, i. e., 27%; while the total eclamptic mortality was 21%. In five cases there was complete anuria, both before and after labor, and none of these women died.

But the final argument against decapsulation is the fact that it has not reduced the mortality from eclampsia to any great extent. The mortality of severe cases, such as are chosen for decapsulation, is about 35%, while the mortality of cases thus far recorded as operated by decapsulation is about 34.3%. The author does not deny the possibility of influencing eclamptic symptoms favorably by decapsulation. He does not think, however, that this favorable influence is due to improvement in renal secretion, but rather to a mechanical action upon the suprarenal capsule or the sympathetic nerves, etc.

7. TREATMENT OF CHRONIC PYELITIS BY IRRIGATIONS.—Engelmann speaks of a case of a woman, 57 years old, in whom the ureteral catheter revealed purulent pyelitis on both sides. There were numerous bacilli and cocci, but no tubercle bacilli. Examination of the urine showed the presence of a double pyonephrosis, with considerable involvement of the right kidney and a dilatation of the left pelvis. Owing to the bilateral character of the affection no operation was attempted. The treatment consisted in irrigation of the dilated pelvis with a 1% solution of silver nitrate. The amount of pus in the urine diminished, and the general condition of the patient improved. The irrigations were repeated every six or eight weeks with good results. The functional condition of the kidneys improved. The patient was operated upon for vesical fistula, under lumbar anesthesia. The operation was difficult and was followed by renal insufficiency and death. At autopsy it was found that both kidneys had been extensively destroyed, the left being more markedly dilated than the right. The point emphasized by Engelmann was the marked improvement in this case, amounting to a prolongation of life as the result of pelvic lavage.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES.

MAY, 1910, No. 9.

1. Anomalies of the Ureters. By J. and P. Delmas, Montpellier.
2. Tumor of the Bladder. By J. Ferron and P. Nadal, Bordeaux.

2. TUMOR OF THE BLADDER.—Ferron and Nadal report a case of tumor of the bladder which had spread by metastases into the liver. Professor Guyon taught that tumors of the bladder rarely caused death by infection, and rarely spread by involvement of the glands, but this teaching has been changed by his pupils, especially by Pasteau who very frequently found involvement of the glands in cancerous tumors of the bladder. For this reason, the authors regard as interesting the history of a case of tumor of the bladder in which the patient died of cachexia, and in which the liver was found to be crowded with epithelial nodules. In this case, careful examination of the glands failed to show any involvement of the liver. The patient was a man aged fifty, who was admitted to the service of Professor Poussin, with symptoms of cystitis. In 1905 an internal urethrotomy was performed, after which there came abundant hæmaturias, the exact nature of which could not be determined. On admission the stricture was found to have recurred and a second urethrotomy was performed. Six days later there was an abundant hæmaturia, which was at first attributed to the operation. The hæmaturia recurred at intervals, during which time the symptoms of cystitis increased and the purulent urine acquired a disagreeable odor. The patient rapidly lost flesh. Examination revealed an inoperable tumor in the left portion of the bladder. On April 13th, a suprapubic incision was made, in order to arrest the hemorrhage. A large new growth, infiltrating the bladder walls was found. The sloughing fragments were curetted, the surface cauterized with the thermo-cautery, and a drainage tube introduced. The bleeding stopped for a month, the patient's general condition improving during this time. Later the wound healed, the patient again lost flesh, became jaundiced, and died on June 30th.

At autopsy an enormous vesical tumor was found, involving the greater part of the bladder. The peritoneum over the bladder, appeared healthy. The ureters were somewhat dilated, but not involved in the cancerous process. The prostate was normal, and there was no involvement of the rectum. The lymphatic glands in the pelvis showed nothing that would lead to a suspicion of cancer. The liver attracted

attention by its very large size, and was found to contain masses of epithelial tissue in the form of numerous nodules. A small nodule was also found in the spleen. The affection probably spread to the hepatic circulation. The veins at the posterior surface of the bladder form a plexus which empties both into the vesical veins and into the middle hemorrhoidal veins. The latter anastomose with the superior hemorrhoidal veins, which, in turn, form the origin of the mesenteric. Here they constitute one of the most important tributaries of the portal system. The lesions in the liver predominated in the left lobe, which suggests that the transmission took place through the splenic branch. The case, therefore, seems to corroborate the experimental evidence of Sérège, who concluded that the portal blood reaches the liver through two separate channels: The large mesenteric on the right and the splenic on the left.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

MAY 1910, No. 10.

1. Anomalies of the Ureters. By J. Delmas and P. Delmas, (continued).
2. Diagnosis and Treatment of Hematuric Unilateral Nephritis. By R. M. Fronnchteine.

2. DIAGNOSIS AND TREATMENT OF HEMATURIC UNILATERAL NEPHRITIS.—Fronnchteine, of Moscow, reviews the subject of unilateral hematuric nephritis, and reports a case of this type which he had under his observation. Hematuria is one of the most serious symptoms of affections of the urinary tract. Modern methods are efficient in the majority of cases for the localization of the hemorrhage. When the bleeding comes from the kidney it may be either unilateral or bilateral. If unilateral it may be profuse or scanty. In the case of scanty hematuria the presence of blood in the urine can be detected often only by means of the microscope or by the addition of Meyer's reagent, phenolphthalein, which gives a pink color even with small quantities of blood in the fluid examined. Very small amounts of blood may accompany renal calculi, in which case the bleeding is rendered more abundant after exercise. The presence of vermiform clots is frequently a valuable diagnostic point of hemorrhages coming from the kidney.

In speaking of so-called cases of essential hematuria, the author does not give this condition recognition as a separate morbid entity.

The case reported occurred in a man, aged 32, who had been suffering from hematuria for some time. Careful examination showed that the blood came from the right kidney. At first the diagnosis was, a tumor of the right kidney, and nephrectomy was decided upon. The kidney was removed on October 16th. The organ was one and a half times the size of the normal kidney. Its capsule was easily stripped, and its surface was mottled. On section nothing was seen except some hemorrhagic spots. On microscopical examination the kidney was found to be the seat of chronic nephritis. Patient made a good recovery. The points made by the author, in summarizing this communication are as follows: Abundant hemorrhages coming from the kidneys always entail an anatomical lesion of the renal tissue. No hemorrhage can exist without such anatomical lesions, although the latter may be insignificant. An acute hemorrhagic nephritis may be unilateral or bilateral. In cases in which it is unilateral it can be designated as "hematuric." The symptom of Israel, namely, the presence of vermiform clots, is noted especially in hematuric nephritis. In unilateral hematuric nephritis, surgical interference is indicated.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

JUNE, 1910, No. 11.

1. Injections of Bismuth Paste in Urinary Surgery. By MM. Heitz-Boyer and Moreno.
2. Anomalies of the Ureter. By J. and P. Delmas, (concluded).

I. INJECTIONS OF BISMUTH PASTE IN URINARY SURGERY.—Heitz-Boyer and Moreno study the application of Beck's method of injections of bismuth paste in urinary surgery. They conclude that the application of this method in urology, should be limited to the treatment of fistulæ following nephrectomy. In these the method is of considerable value. An interesting diagnostic application of the bismuth paste method, consists in the examination of cases with suspected communications between the bladder and the intestine. The therapeutic effects of these injections upon suppurating fistulæ are very marked, and the method presents the advantage of allowing of infrequent dressings. The fistulæ usually close within a reasonably short time. While the authors have not been fortunate enough to encounter cases which have given as brilliant results as those reported by Beck, they express their satisfaction at the results which they have attained. The

treatment requires time, much attention and perseverance, but if these conditions are observed, it gives results when older methods fail. This alone is sufficient recommendation.

The technique employed by the authors was a slight modification of that recommended by the American surgeon who originated the method. At first Beck's formulæ were used, but the authors were struck with the unfortunate tendency of the paste to escape from the wounds. Most of the fistulæ which are treated in urinary surgery, occur in patients who are going about, and in spite of the use of ice, most of the paste was expelled from the fistulæ within the first few hours after the injection. A thicker paste, and one which solidified more rapidly, was therefore prepared, with the following formula:

R Vaseline	20 parts
Paraffin	10 parts
Lanoline	10 parts
Bismuth subnitrate	10 parts

The important point consisted in the introduction of lanoline, which is much more coherent than vaseline, and forms a more satisfactory paste than the latter. The authors are even inclined in the future to use a larger proportion of lanoline. The proportion of bismuth in this formula was but 20% instead of 30% or 33%, as used by Beck. While the 20% paste seems sufficient for general use, there is no reason why a 40% bismuth cannot be prepared by using 20 parts of the bismuth instead of ten in the above formula.

So far as syringes are concerned, that of Janet, which every urinary specialist possesses, is perfectly satisfactory in most cases. In special instances, in which there were multiple fistulæ opening into a large wound, a special syringe was employed. This was made of glass, with an elongated tip, and a well-fitting piston. If the treatment must be used on a large scale, a syringe made completely of metal, would be desirable. The rest of the technique was practically the same as that of Beck's. An important point is the use of ice after the injection for the purpose of facilitating the adherence of the paste to the fistulous tract.

The negative results obtained by the authors, are of importance. They found that the treatment with bismuth paste was of no avail whatever in fistulæ occurring in the lower part of the urinary tract. The treatment was tried in periurethral, prostatic and other perineal fistulæ, in vestical fistulæ, etc. In none of these did the treatment prove effective. The method, therefore, is valuable only in renal fistulæ, so far as its application to the urinary tract is concerned.

RIVESTA UROLOGICA

APRIL 15, 1910.

1. On Methods of Surgical Exploration of the Pelvis. By Pierre Delbet and Pierre Mocquot, (concluded).
2. Radio-diagnosis in Aseptic Renal Lithiasis. By R. Della Vedora.
3. Calculi of the Ureter. By Dr. Nicolich.
4. Clinical Observations on the Vesical Trigone. By Professor Zuckerkandl.
5. Congenital Strictures of the Urethra. By Dr. Gallois.

1. ON METHODS OF SURGICAL EXPLORATION OF THE PELVIS.—Delbet and Mocquot report six cases of exploratory pyelotomy, pyelotomy for stone, etc., and review the results of experiments upon cadavers in an endeavor to define the position of surgical exploration of the pelvis. They conclude from their anatomical, experimental and clinical studies that posterior pyelotomy is the ideal method for exploring completely the upper urinary tract, and is superior to nephrotomy in that it is less dangerous. The method is applicable to all cases in which the kidney is not abnormally adherent. Pyelotomy also allows the removal of a large proportion of the calculi encountered in renal lithiasis. The operation in question has gained many adherents in France during the past few years.

3. CALCULI IN THE URETERS.—Nicolich, of Trieste, reviews this subject with especial reference to the diagnosis of urethral calculi with the aid of the X-rays. The author was one of the first to demonstrate the diagnosis of calculi of the urinary tract, with the X-rays, in which work he had the assistance of the distinguished radiologist, Gortan. Like all surgeons experienced in this work, he cautions against faulty interpretation of radiographs of the ureter. The clinical symptoms must never be lost sight of, as was forcibly impressed upon him lately in the case of a patient with pronounced symptoms of renal stone, who refused to be operated because radiographs were negative, but who finally submitted to operation, with the result that two large stones were removed. As regards the methods of removing ureteral calculi, there are three distinct operations: If the calculus is at the upper end, nephrotomy or pyelotomy are the operations of choice; if the stone is in the middle portion, ureterotomy should be performed, and if it is in the lower portion, suprapubic cystotomy, with incision of the ureteral meatus, is indicated.

Recently the author operated upon a patient in whom he removed

the ureteral calculus which was not discovered upon repeated examination with the X-rays. The patient was a man aged 35, who was seized with a violent renal colic about a year before admission. He went to a hospital where he remained for five months. Between November, 1908 and June, 1909, he had no colic or fever, but had some slight pain in the right loin. On June 20th, he was admitted to the hospital during an attack of colic and fever. Radiography was negative. The urine was cloudy and contained pus. The ureteral catheter on the right side, was arrested at about 6 c.m. from the meatus. On June 30th a lumbar nephrectomy was performed, and a stone was found, situated at some distance below the pelvis, and impacted in the ureter. Attempts to dislodge this stone by means of long forceps proved unsuccessful, and were abandoned in order not to prolong the operation unduly. The patient was sent back to the ward, and his symptoms completely disappeared within a short time, his urine clearing up perfectly. A second radiography again proved negative, although the presence of stone in the ureter had been shown positively at the operation. The author closes with the hope that the stone which he was forced to leave in this patient's ureter will not give him any more trouble.

4. CLINICAL OBSERVATIONS ON THE VESICAL TRIGONE.—Zuckerkindl reminds us that the trigone is a well differentiated portion of the bladder, and that it is clinically of the greatest importance. For one thing, the trigone does not take part in the function of the bladder. This is demonstrated in cases with muscular hypertrophy of the bladder following obstruction to the urinary flow, in which the trigone alone remains unaffected while the muscular structures of the rest of the bladder are markedly altered. E. Zuckerkindl speaks of the rigidity of the trigone which depends on the functions of the ureters, the orifices of which must remain open independently of the contraction of the bladder walls. This rigidity guarantees a free flow of urine into the bladder, and may play an important rôle in cases of functional disturbances of the bladder.

The shape of the trigone and of the base of the bladder, offer the most favorable conditions for the muscular contractions of the bladder in their relation to the patency of the ureteral orifices. Most of these details can be seen with the cystoscope, and changes in the anatomical conditions of the ureters and the trigone may be of great diagnostic importance. Unfortunately, the conformation of the "bas-fond" of the bladder, as the French authors term it, is imperfectly understood, and any changes therein are frequently overlooked with the cystoscope.

This hollow begins behind the orifices of the ureters. As the patient gets older the crest between the ureters rises, so that the hollow behind this bar grows more and more towards the back of the bladder. In hypertrophy of the prostate a variety of conditions of the trigone may be noted. The base of the bladder may be deformed in some types of enlarged prostate. Thus, the median lobe, when enlarged, will raise the vesical orifice and give rise to a prominence in the trigone. In other cases of prostatic enlargement the base of the bladder is so dislodged that a part of the trigone forms the posterior investment of the prostate, and this may go on to such an extent that the ureters may come to be located upon the sacral surface of the prostate. Between these extremes, every gradation is possible. When the bladder is distended in atonic conditions, for example, the trigone does not take part in the distension, and the orifices of the ureters generally remain normal in these cases. The interureteral crest, however, may be stretched by the distension, so that the distance between the ureters is increased.

5. CONGENITAL STRICTURES OF THE URETHRA.—Gallois asserts that congenital strictures of the urethra are more frequent than is generally supposed. They are usually considered as quite rare by most writers of text-books. It was Bazy who called attention to congenital strictures of the urethra, and since then the number of cases reported has markedly increased. During the past few years, Gallois has seen three cases of congenital strictures of this type, two of the cases occurring in brothers.

Case I occurred in a young man of 21, who complained of difficulty in urination and a slight degree of incontinence. There were no symptoms of urethritis on admission, and there was no history of venereal disease. On exploration a stricture admitting No. 10 French, was found at 13 c.m. from the meatus. The patient refused to undergo dilatation. This was undoubtedly a case of congenital stricture.

Case II occurred in the brother of the first patient, a young man of 23, who applied for treatment for a phimosis. The meatus, in this case, was so small, that it admitted only a large sized filiform. The phimosis was operated upon, but some time afterwards the patient returned with an attack of complete retention. The bladder was markedly distended. After many attempts a small filiform was passed and the size gradually increased. Progressive dilatation was continued until over a year afterwards a No. 25 F. entered easily into the bladder. Careful exploration of the canal was made as soon as the dilatation had progressed sufficiently, and revealed three strictures. In this patient, as in his brother, there was no history of injury or of venereal disease.

He had always been obliged to make efforts during urination, and also suffered from incontinence, both by day and by night. The existence of congenital strictures, in this case, was supported by the presence of phimosis and the presence of a very small meatus.

Case III. This patient began to complain of urinary disturbances at the age of 32. He had always had more or less difficulty in micturition, however. In October, 1908, he applied for treatment for urinary retention. On examination the first stricture was found to be situated at a few centimetres from the meatus, admitting a No. 16 F. A second stricture was found at 13 c.m., which arrested all instruments except filiforms. The strictures were located in regions of the urethra which are normally the seat of narrowing. The patient had never had any venereal disease or any injuries. He was treated by dilatation, and later by internal urethrectomy, with good results.

The author warns against concluding from the presence of strictures in cases of urethritis, that the strictured area is the result of a gonorrhoeal process. Careful examination of all urethras, including those of men with negative venereal histories, will, in all probability, reveal a larger number of congenital strictures than we have been accustomed hitherto to expect from our knowledge of the subject.

ZEITSCHRIFT FÜR UROLOGIE

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1. Endovesical Operations and Operative Cystoscopes. By O. Kneise, Halle a. S.
2. The Bransford-Lewis Cystoscope. By Dr. Bransford Lewis, St. Louis, U. S. A.
3. Shreds in the Urine without Urethritis. By Karl Friedrich Hoffmann, Dusseldorf.
4. A Contribution to Irrigation-Urethroscopy. By O. Scheuer, Vienna.

I. ENDOVESICAL OPERATIONS AND OPERATIVE CYSTOSCOPES.—O. Kneise, believes that intravesical operations are destined to play an important rôle in surgery in the future, although he admits that many surgeons are still opposed to this method. Nitze used to say that surgeons prefer to have operations done upon themselves by the intravesical method rather than by the suprapubic, and yet, the greatest surgeons to-day continue to employ suprapubic incision, even for the smallest papilloma. Urologists are fairly in agreement upon this subject, and at the second Congress of the German Urological Association,

there seemed to be very little dissension from the conclusion that all papillomas up to a certain size, should be removed by means of the intravesical method. Even the representatives of those schools where Nitze's methods were opposed strenuously, are gradually turning to the intravesical method. Kneise cannot help thinking that many opponents of the intravesical method are against it because they have had no experience in the handling of operative cystoscopes. On the other hand, physicians who witness an intravesical operation go away always with enthusiasm for this method. While the author admits that the intravesical method has its limitations, and that one should not be a blind adherent of any method, yet he firmly believes that it is only a question of time when operative cystoscopy will come into its own.

It does not matter so much which instrument we use, so long as we get the results. There are certain conditions, however, which every operative cystoscope must fulfill. In the first place, it must be provided with an irrigating attachment, and must not have a too great calibre. In the second place, the instrument must be so arranged that one can work upon every side of the bladder with a single loop carrier, cautery point, etc. The loop should be easily manipulated, and the loop carrier should be so steady that it can be pressed against the bladder wall with sufficient force. The cautery must be so arranged that it can be accurately applied to the place where we intend to apply it. The same should be true of the needle point. Kneise claims to have combined all of these advantages in his new operative cystoscope which was constructed upon the basis of Wossidlo's cystoscope, and is made by Heynemann. His new operative attachments, however, may be adapted to any double catheterizing cystoscope. Kneise does not insist that this instrument is the only one with which results can be obtained, and that all other instruments should now be discarded. The advantages of the new instrument lie in the fact that the carriers of the operative attachments are flexible, and yet, are sufficiently stiff to withstand pressure, which is needed in the work. The new instrument is somewhat smaller than that of Nitze, and is less costly than the latter.

2. THE BRANSFORD-LEWIS CYSTOSCOPES.—Bransford Lewis describes his various cystoscopes in a paper which he read before the 16th International Medical Congress, in Budapest. The article includes a description of the author's universal as well as his operative cystoscopes, both of which are sufficiently familiar to American readers to require no further description here.

Before introducing his cystoscopes the author uses alypin as an anæsthetic, employing the remedy in the form of tablets which are introduced

into the posterior urethra with the aid of his tablet depositor. The patient first empties his bladder or is catheterized, then the depositor is introduced into the posterior urethra, the obturator is removed, and one or more tablets of alypin are introduced into the depositor and pushed into the posterior recess by means of the obturator. The tablets disintegrate in a very short time into a damp, sticky mass which can be smeared over the entire surface of the posterior urethra and the neck of the bladder by movements of the depositor until the patient no longer feels any pain.

3. SHREDS IN THE URINE WITHOUT URETHRITIS.—Hoffman contributes an important article upon the subject of shreds in the urine of patients who have never had any urethritis. The article is of such value that an extended review of it is offered here. Hoffman begins by pointing out the importance of shreds in the diagnosis of chronic urethritis in the male. He summarizes briefly the work of Finger and others who have studied gonorrhœal shreds. It is important to remember that besides the shreds which are the products of a circumscribed urethral inflammation, there are also shreds which represent casts of inflamed glands. These are distinguished from the former chiefly by their small size. Brauser examined the morning urine of 300 male patients in a medical clinic. He excluded from his studies all cases in which appearances simulating shreds could occur, such as non-gonorrhœal inflammations of the urinary organs, syphilis, advanced tuberculosis, fever of any sort, and found that in the remaining cases, 82% showed shreds in the urine, among which 54% showed pus shreds. It was interesting to note that the percentage of patients with purely pus shreds was smallest between the ages of 15 and 20, and largest between the ages of 26 and 30, when it gradually diminished, reaching 43% in patients over 66.

Hoffman became interested in the question as to how frequently shreds occur in the morning urine of patients who had never had any urethritis. For this purpose, he examined 200 men. At the first visit the patient's urine was simply inspected and if shreds were found, he was told to come on the following day, when the two-glass test was applied. The shreds then were fished out with a platinum loop, or obtained after centrifuging, and were stained with methylene blue or with Unna's or with Gram's stain. In all cases but one, cultures were also made. The author contented himself with determining the absence of gonococci, and did not carry his work to the extent of studying the other germs present. The morning urine was examined, at least three times in each case. Of the 200 patients examined, 9, in other words, 4.5% showed shreds. In some of these patients the shreds consisted exclusively

of epithelia. In some instances, these epithelial shreds consisted of cells which lay closely together, while in others they were separated and occurred in groups of two or three. Sometimes they were superimposed in several layers. Cells which could be definitely recognized as leucocytes, were completely absent, although, in some cases, there were cell fragments of doubtful origin. There were bacteria in but a few instances, usually cocci in groups or chains.

While the above type constituted the majority of the shreds found in these patients, there were occasionally also shreds which were much longer, and which consisted of pure mucus containing isolated epithelia and cocci. The pure epithelial shred was found only in one patient. In five other patients there were shreds composed purely or chiefly of bacteria, consisting of enormous masses of cocci or bacilli, so that the cells which were present in small numbers were almost completely hidden. The masses of bacteria either formed the entire substance of the shred or else they were embedded in a finely granular, presumably mucoid matrix. In most cases a single shred was found to contain but one variety of bacteria. Less frequently, there were two or more. In some cases, different bacteria were found on different days alternately, in the same patient. In most cases, the bacteria were small gram-positive cocci, occurring in dense masses. Rarely there were gram-negative bacilli also occurring in masses, and sometimes gram-positive bacilli, while in one case there were large, thick gram-positive bacilli which occurred in long shreds. There were also found two varieties of gram-positive diplococci, one variety being of the same size as the gonococcus, the other, far larger, while both were distinguished from the gonococcus from their shape and by their behavior with Gram's stain. Both of the diplococci mentioned occurred alone quite frequently, while the other germs were always associated with other varieties. In none of the cases were gonococci discovered either by microscope or by culture.

In two cases there were pus shreds. These consisted chiefly of leucocytes which were embedded sometimes in finely granular mucin, or were grouped about a centrally located mucous thread. Epithelia and leucocytes were almost always absent. Purely mucous shreds were never found alone, but always in association with other shreds. At times there were mixed forms of shreds in which cells and bacteria were present in varying proportions.

The patients examined, therefore, showed the presence of shreds in the morning urine. These shreds could have come only from the urethra as they always occurred in the first glass. Moreover, no portion of the genito-urinary tract, except the urethra and its annexed

glands, is capable of discharging shreds of the types described. In most cases, the shreds were too long to be attributable to the urethral glands. The occurrence of these shreds in the first glass and their absence in the second, does not necessarily mean that they came from the anterior urethra. When such scanty mucoid material accumulates in the urethra, it never regurgitates into the bladder from the posterior urethra, but remains adherent to the mucosa, and is washed into the first glass.

None of the patients, in whom shreds were found, had ever had any gonorrheal infection, according to his own statement. In spite of the positive denials of some of the patients among the 200 examined, whenever there was any suspicion of the previous presence of urethritis, the case was rejected, and only such cases admitted to the group studied in detail in which there was no subjective or objective evidence of a gonorrheal infection. The shreds, therefore, may be regarded as of non-gonorrheal origin. That they were products of an inflammatory condition, in some instances, must be concluded from the presence of pus cells within them. In these instances, they were probably the result of non-gonorrheal urethritis which was due to the bacteria present in the urethra. In none of the cases, however, was there a history of an acute urethritis of any kind, nor any history of injury or of urethral instrumentation. Furthermore, no descending infection could be proved in any case, although in one patient there was a history of typhoid.

The only possible explanation is that some of the bacteria which normally dwell in the urethra, may have become virulent in these cases, and thus, have produced inflammatory localized lesions. In this connection, it must be noted however, that an abundant growth of the normal urethral bacteria is not necessarily connected with an increase of virulence in these germs. The cases in which there were purely bacterial shreds, therefore, should not be classed as inflammatory.

The cases in which pus shreds occurred were of especial interest. Possibly these were the results of a so-called aseptic urethritis, or rather one in which bacteria were present at first, but had disappeared early, leaving afterwards a persistent irritation which was accompanied by the formation of pus shreds.

The author considers as unusual the type of purely epithelial shred which was found in one of these cases. He asserts that such shreds are not noted in gonorrhœal urethritis. [Although the author does not describe the type of epithelia which composed this shred, it might be noted here that he has apparently overlooked the occurrence of purely epithelial shreds in certain types of chronic urethritis. That such shreds occur regularly in some cases in which the presence of hard infiltrations

in the urethra leads to the desquamation of superficial horny, epithelial cells in sheets resembling bits of epidermis, has been shown by DeSantos Saxe. The occurrence of epithelial shreds more or less mixed with mucoid material, is quite frequent in chronic urethritis, and is recognized by every authority upon the subject of urethral shreds.]

The practical importance of the author's investigation in considerable. He has shown that cases may occur in which shreds are present in the urine, although there had never been any gonorrheal infection. Furthermore, there are cases in which a gonorrhea was present, had been treated, and was apparently cured. Later the patient notices shreds, and applies to a physician for treatment, although these shreds may not have been the result of the urethritis, but may simply be the shreds that had been present in the patient's urine right along. In another case, the patient who had never had any gonorrhea, notices shreds and comes for examination and advice. The question is whether or not the shreds were due to a previous gonorrheal infection. This may be determined by the aid of sounds, the urethroscope, irrigating injections, the microscope and the culture tube. An anatomical cause for the formation of the shreds will be found in most cases, but if all the methods applied fail to show anything that testifies of a previous gonorrheal infection, then we can conclude that the shreds were non-gonorrheal, and that they may be classed with the shreds observed in the 9 cases reported. Furthermore, we must remember that non-specific urethritis is much more common than is usually supposed, and above all, that shreds present in a patient's urine should never without further evidence, lead to a verdict of the previous presence of gonorrheal infection.

In closing, Hoffman suggests for the condition described in his 9 cases, the name of *filamentosis-simplex*. As regards treatment of this condition, it may practically be omitted, although injections of antiseptics or astringents may be used by those who care to do so. For his part, Hoffman advises to let well enough alone.

4. A CONTRIBUTION TO IRRIGATION-URETHROSCOPY.—Scheuer reviews briefly the history of the urethroscope, and points out that a revolution has taken place in the field of urethroscopy as the result of the work of Hans Goldschmidt, of Berlin, who constructed a urethroscope upon the principle of Nitze's cystosope. The advantage of Goldschmidt's instrument is that it allows to distend the posterior urethra with the aid of water pressure, while examining each part of the canal. Warm boric acid solution should be employed in preference to cold water, when using this instrument, as the warm solution counteracts spasm. The urethroscope may be used in the anterior as well as in the posterior ure-

thra. For the anterior urethra Goldschmidt's employs a short end-piece which is attached to the end of the instrument, while for the posterior a curved tapering endpiece is used. Unfortunately, the instrument does not lend itself quite so well to the examination of the anterior urethra for the reason that the water pressure so distends the canal as to remove the delicate differences in color which are so important in the diagnosis of anterior urethral lesions. The mouths of the glands appear as dark openings of various sizes, upon a pale background. Strictures and polypi, on the other hand, show very well with this instrument. It is in the posterior urethra that Goldschmidt's apparatus is of especial value. In beginning the examination of this portion, we first discover the lower border of the vesical sphincter which extends across the field as a semilunar fold and, in healthy young persons is smooth and even. In older patients, or in those with chronic urethritis, the edge is not smooth, but ridged and irregular. Sometimes, the urethroscope shows that the shreds in the urine come from the portion of the urethra immediately adjacent to the sphincter. Going forward, we find that the lower wall of the urethra is hollowed out abruptly, the cavity being especially marked in older men. Normally, this portion is of a yellowish-red color, and shows longitudinal, parallel capillary striations. These, however, disappear in cases of chronic urethritis when the mucosa at this point appears uneven, wrinkled and rough, dark red in color, with hyperemic spots or small erosions.

Going still further forward with the instrument, we strike the verumontanum. This, in almost all cases, is of a pale, light yellowish-grey color when illuminated from behind. When illuminated from above, the verumontanum looks white and normally shows white capillary designs. In disease one should not pay too much attention to the color of the verumontanum, which is very variable, but rather to its form. Even the size, however, is not an absolute criterion, as it varies with the distance of the instrument from the projection and with certain other factors. It is the shape of the verumontanum which is most characteristic. Normally, the structure is polypoid in shape, with broad rounded head, and a pyramidal base. The surface is either smooth or ridged and in chronic gonorrhea usually quite nodular.

In front of the verumontanum are found the openings of the ejaculatory ducts and the prostatic sinus. The latter is a small round, dark red dimple which contrasts markedly with the yellowish color of the verumontanum. The ducts appear more or less distinctly as red points, and when seen somewhat in profile may be compared to frog's eyes. At times the sinus or the ducts secrete a whitish substance which

may be increased by pressure upon the prostate. If there is pus in the latter, thick, purulent plugs may be seen to issue from the openings of the prostatic ducts. In prostatitis the enlarged lateral lobes of the prostate may be seen encroaching on either side into the visual field.

While the Goldschmidt instrument is chiefly for the purpose of diagnosis, its author has now added to it certain instruments which enable one to apply treatment to the posterior urethra.

THE TREATMENT OF SYPHILIS WITH QUININE: Lenzman (*Deutsche medizinische Wochenschrift*, Dec. 9 and 16, 1909) employed quinine in a number of cases of syphilis in which mercury and the iodines could not be taken. On the basis of his experience he recommends quinine in conjunction with potassium iodide in the treatment of these cases, believing that the poison of syphilis will eventually cease to yield to any remedy which has been employed against it for a long time. The indications for treatment should be a positive or negative Wassermann reaction.

THE PHYSIOLOGICAL FUNCTIONS OF THE PROSTATIC SECRETION: Vishnefski (*Russky Vrach*, Nov. 14, 1909) undertook an experimental study of the physiology of the prostatic juice. He comments upon the fact that but very little is known regarding the functions of the prostatic secretions. This fluid has been variously regarded as essential to the activity of the spermatozoa, and as a diluent which merely acts mechanically by facilitating the movements of these bodies. The experimental work undertaken by the author consisted, in the first place, of a study of the action of the prostatic juice of recently killed dogs in hanging-drops of dogs' semen. The results of these observations were not conclusive, and it appeared that the prostatic fluid under these conditions did not show any remarkable effect upon the motility of the spermatozoa.

A second series of experiments was therefore undertaken by Vishnefski, in which the prostatic fluid was obtained with the aid of artificial stimulation of the spinal center. The dog was first placed under the influence of curare, a perineal incision was made, and a glass cannula of appropriate shape was inserted into the prostatic urethra. The abdomen was then opened, and the base of the bladder was ligated closely over the prostate. The vasa deferentia were divided near their entrance into the prostate. The nerve supply of the prostatic gland is composed of a plexus which surrounds its capsule. By applying an electrode to this plexus, directly upon the capsule of the prostate, and

using a faradic current, the author was able to stimulate the prostatic secretion and thus to obtain a quantity of pure prostatic juice without any admixture of spermatozoa. By experimenting with this prostatic secretion, artificially obtained, he was able to excite movements of the spermatozoa in hanging-drop preparations. The spermatazoa in the vas deferens of the dog are immobile. When the prostatic secretion was added to semen obtained from the vas, the spermatozoa therein became actively motile, without reference to the quantity of prostatic fluid that had been added. The probability is that the prostatic fluid contains a specific agent favoring motility in the spermatozoa, and inasmuch as boiling the prostatic fluid destroys this specific agent, the agent promoting motility is probably very sensitive to external conditions.

THE GENERAL PRACTITIONER'S DEPARTMENT

THE ITALIAN CAMPAIGN OF CHARLES VIII AND THE INTRODUCTION OF SYPHILIS INTO FRANCE

Everyone knows that while France's neighbors in the northern parts of Europe were wont to speak of syphilis as the "French disease," the people of France had good and sufficient reason to speak of the great venereal plague as the "Italian disease," or sometimes as the "Neapolitan disease." The story of the transmission of syphilis from Italy to France is one of the most interesting chapters in the fascinating history of this disease. To realize the conditions under which the events about to be spoken of occurred, the reader must for a moment transport himself mentally to the beginning of the Fifteenth Century. At that moment the dawn of the Renaissance was just breaking upon the long night of Mediævalism. "This new birth of man," as Iwan Bloch (*Der Ursprung der Syphilis*, Jena, 1901) well says, "did not take place without severe pains." There was a spirit of unrest, of suppressed excitement, which gradually made itself felt in cataclysmal political shocks, in the expansion of demoniacal passions, while the all-saving light of Science and the exquisite rise of art and of the love for beauty spread over the world, to remain as perpetual monuments after the misdeeds of the period of transition had forever disappeared (Gregorovius, *Geschichte der Stadt Rom im Mittelalter*, 1870). Perhaps no event of that time had a more profound influence upon European life and culture than the campaign of the young king of France, Charles VIII, who marched upon Italy in 1494. Politically the campaign had very slight direct effect, but the indirect effects of this war are to be looked upon as of the greatest importance to the world. Von Ranke characterizes the campaign of Charles VIII, as "the last military undertaking which was conceived in the spirit of the chivalry of the Crusades," while Muntz regards the campaign of Charles VIII as the most important event of that time, next to the discovery of America.

The young king, at the head of his troops, passed through Italy from Turin to Naples during the wonderful era of the Renaissance, when Italy was a paradise of beauty and splendor. Everything seemed so different from what the soldiers had seen in their own country. The climate was mild, the landscape beautiful, the people lived in wealth and luxury. The magnificence of the monuments and buildings, the free-

dom and fullness of southern life, in the open air, under the rays of the sun, amidst a civilization which seemed an improvement upon that of Athens and Rome,—all these things simply “turned the heads” of the French soldiers. But above all, it was the Italian women,” with their shining eyes and tragic expression” that captivated the men of the north. Everywhere where the French soldiers passed, they worshipped at the shrine of the Italian woman; they for the first time in fact, bent under the yoke of Woman, yielding to her the reign which she still enjoys today in France. The sway of woman was reflected and represented by such characters as Anne and Marguerite, Diane de Poitiers and Catherine de Medicis.

But, alas, in the midst of all this joy and splendor, the soldiers of Charles VIII were attacked by a new, terrible disease which began with the sexual organs and spread over the entire body, a disease unknown to either physicians or laymen, which spread with most alarming virulence and attacked both guilty and innocent. The great disease swallowed all other diseases, and became “the great plague of the XVI Century.”

In order to gain an idea of the exposure to infection to which the French soldiers subjected themselves, a brief sketch of the campaign of Charles VIII into Italy may be of interest. In this, we shall give only those points which bear upon the moral and physical degradation of the invading army. Charles VIII, with the intention of conquering the Kingdom of Naples, to the throne of which he was a pretender, collected a large army of mercenary troops, which he hired from all countries of Europe. The total number of soldiers in this army was estimated at 32,000 (Hesnaut), although some authors make the number much larger. Of these there were six thousand Swiss, ten thousand men from Picardy (from the north of France and Holland), five thousand men from Gascony (inhabitants of the south of France), and from the Pyrennee provinces. The rest consisted of Spaniards, Italians, Englishmen, Hungarians, Slovacs, etc. An important point is that there were many Spaniards in that army. Many Spanish soldiers who had fought against Charles VIII under Ferdinand the Catholic, were willing to be hired by the former, after the conclusion of peace. A further interesting point was the presence with this army of a large number of prostitutes. This was quite in accordance with the custom of the Middle Ages, which has continued even into modern times. No campaign could be thought of without the accompaniment of a small army of courtesans. The theory was that by stimulating the sexual passions, the lust for murder, *i. e.*, the “bravery” of the soldiers would be enhanced, thus testify-

ing of the Sadistic tendencies of the bestial age of which we speak. Sanuto counted over eight hundred women with the army of Charles VIII, among them five hundred prostitutes, a number which was, of course, quite inadequate for the sexual needs of thirty thousand rough mercenaries.

The army entered Italy on September 3, 1494. On September 6, the King was the guest of honor in Chieri, at a gala performance, participated in by the most exclusive ladies of Italy, with the object of greeting the King as the protector of the beautiful sex. Among other delectable things, the performance included a pantomime of a woman in labor. We mention this to show the spirit in which the Italian women greeted the French army. From this day on, the campaign was a practically one continuous debauch. De Conti says that the French soldiers were never without women, not even at their meals, while other authors depict the brutality with which the soldiers everywhere appropriated any woman that they found attractive. The soldiers were intoxicated with the charm and the novelty of the Italian women, and in consequence of this, indulged in incredible sexual excesses.

On September 13th (rather too early for the appearance of a primary lesion, we think, although it is possible that the period of incubation was very much shorter in the virulent form prevalent at that time) Charles VIII fell ill in Asti. It is a matter of dispute whether his illness was smallpox or syphilis. According to Bloch, it was probably German measles, but it is impossible that the eruption was syphilitic. Practically it makes no difference whether the King had syphilis or not. The campaign continued, Charles VIII entering Florence in November, and Siena in December, the army enjoying the favors of the beautiful women of those cities in turn. Rome was the next objective point and was entered on the last day of the year. Here Charles VIII remained for four weeks, incidentally performing the ridiculous "laying on of hands" or "royal touch," for the cure of goitre. The unspeakable Alexander VI reigned as Pope, with all the eccentricities "and worse" that have made the Borgias famous. Never has there been such an aggregation of the Priestesses of Venus, a truly international gathering, as were in Rome during the reign of this Pope. It was especially the Spanish prostitutes that were "in vogue" then, and there was about fourteen thousand of them in Rome at the time. It was not astonishing that the soldiers of Charles VIII were attracted by these women and that they again gave themselves up to sexual excesses. There were many Germans and Swiss in the army, and these were particularly attractive to the daughters of the South. There were numerous Spaniards in Italy at that time and

there were many Germans in Spain. Spaniards and Germans in large numbers emigrated to Italy, and were very friendly with each other.

On February 22, 1495, Charles VIII entered Naples, the young king, Ferdinand II having fled before the approach of the French army. In Naples, the army indulged in one continuous orgy. Wine flowed in streams over the streets so that the soldiers walked in it, and the women everywhere received the foreigners with open arms. The army remained in Naples for eighty days, and the King thought of nothing but pleasure for himself and his soldiers. Soon, however, the people of Naples tired of the brutal, cruel, dissipated hirelings of Charles VIII, and began to threaten armed resistance. Charles VIII at this moment heard that a Spanish army had landed in Sicily and was coming to the aid of Ferdinand II, of Naples. The French king left Naples in May, 1495, leaving six thousand men as a garrison. His retreat through Italy was again a continuation of festivities until he met the allied army in July at Fornuovo and succeeded in extricating himself with the larger part of his men and baggage. Among the booty captured by the Italians was the King's diary, which contained a list of all the women whom he had enjoyed, with a portrait of each and a description of her charms. Naples was soon re-captured by the Italians, the remnants of the French army evacuating and joining the rest of Charles' troops. It was not until November that the army reached France. The campaign was a failure from every point of view. It was the means, however, of spreading syphilis to half a dozen countries.

The occurrence of gonococci in prostatic secretion varies inversely as the duration since the last infection.

Never give mercury internally, by injection or in any other way, without also giving a mouth wash and instructing the patient in the care of his gums and teeth.

Tuberculosis of the urinary tract in most (perhaps in all) cases, begins in the kidney and travels downward, except when one kidney is involved, when the opposite organ may be affected by ascending infection from a tuberculous bladder. The infection may go down, across and up again, in these bilateral cases.

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REPORT OF A CASE OF BILATERAL RENAL LESIONS*

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TO attempt to discuss broadly so comprehensive a subject as the treatment indicated when both kidneys are involved in surgical disease would lead far beyond the limits set for a paper before this Association and would tax abilities far beyond my own.

My purpose is to report rather fully upon one such case in the hope that its features may prove of interest.

Patients come to all of us in whom disease is demonstrable in both kidneys. It is often a question of great moment to decide upon the course to pursue, to decide whether medical palliative measures alone are to be adopted, or what surgical means may give relief and how to go about it.

We are fortunate in possessing means for determining more accurately than it is possible in any other sphere of medicine the nature of the lesion, its extent, and the functional capacity of these organs. Through the means at our disposal delicate questions as to the plan to adopt may often be decided to the great advantage of the sufferer.

Before undertaking a surgical procedure which may disturb the physiologic work that the organ attacked is depended upon to accomplish, or which may result in serious imposition upon its

*Read before the American Association of Genito-Urinary Surgeons, Washington, D. C., May, 1910.

weak fellow, are we not in duty bound to weigh carefully such evidence as we may obtain as to the ability of each? An accurate diagnosis before operation is in these cases of paramount importance.

It seems to me wise in these cases to estimate, as accurately as we can, which organ will suffer least by the operation and which one may reasonably be counted upon to do the work of the body if its fellow has to be sacrificed.

A case in the service of Dr. F. Tilden Brown in Bellevue Hospital, which came under my care, may be briefly stated in illustration.

Woman, twenty-three years of age, had suffered severely with pain in the back, loins and along the course of both ureters, but with almost constant agonizing pain in the right side. The condition found upon examination (radiography, ureter catheterization, etc.) was right pyonephrosis with large calculous masses branching from the pelvis into the calices, and upon the left side a comparatively much smaller calculus in the pelvis, with only a small amount of pus (moderate pyelitis). The right kidney was apparently doing less than half of the renal excretory work. The urine from the left kidney was of good quality except for this small pus-content.

In this case I sought to give her one good kidney at the earliest opportunity, and to deal with the other organ later. Here the danger of imposing too greatly upon the better left kidney with its calculus, by any operative procedure upon the very poor right kidney, loomed large. The nephrolithotomy upon the left was undertaken first and later the right kidney was split, the calculi removed and drainage established (nephrotomy).

In order that you may not be misled into thinking that the result accomplished was all that was hoped for, I am impelled to state that this frail woman has been only in part relieved, although my course would be the same again under like circumstances.

To properly decide upon a course of treatment we must be fully informed regarding the whole extent of disease and the

relative amount of involvement of each part, so the crux of this whole matter lies in the most painstaking diagnosis.

Without discussing the comparative values of the methods claiming our attention for renal-function determination, I want to say that we must never lose sight of the fact, that the examination of products of the two kidneys by chemic, microscopic, and bacteriologic methods, is of first importance. No one of the newer means of testing renal function can be depended upon to tell us absolutely the measure of the functional capacity of a kidney, or what may be expected of it when subjected to changed conditions; and no combination of the various and varicolored results of freezing point determination, electric conductivity determination, phloridzin, glycosuria, induced polyuria, methylene blue, indigo-carmin, urea, total nitrogen, sodium chloride, etc., can figure it out either. We are all seeking a simple, direct and humanly accurate diagnosis, and are interestedly working to find the combination of methods which will give us this by the least complicated and time-consuming method and with least annoyance to our patient.

The study of the anatomy or gross pathology of each kidney will often give surprising insight into the conditions present, and for this purpose radiographs prove most valuable, as well as the use of the largest ureter catheters possible, through which quite thick pus will flow which would occlude the lumen of smaller sizes. I am using frequently now a No. 9, French, catheter (No. 5 and 6 are most commonly employed).

The case to which your attention is particularly called is one presenting right pyonephrosis and markedly dilated right ureter and left pyelitis with (a small) left renal calculus.

I am indebted to Dr. George Woolsey for having asked me to see this patient for examination of the bladder and for ureter catheterization at the Presbyterian Hospital over a year ago; and then for sending him to me for treatment after he left the hospital.

The patient, a German by birth, who has lived in New York twenty-four years, is a man forty-one years of age, married, has children.

History: Chronic constipation for many years. No history of gonococcic infection. Seventeen years ago, when twenty-four years of age, he had some urinary disturbance, as to the nature of which he is in doubt. He thinks he had no urethral discharge and no pain in urination, but simply urethral irritation and frequency of micturition.

Thirteen or fourteen years ago he began to have increased frequency of micturition, getting up two or three times at night and urinating about every three hours during the day, and since that time the urine has been cloudy with a heavy sediment.

Six or seven years ago he first suffered with transitory, slight pain in the lumbar region of the back.

Five years ago he first had colicky pain in the right lumbar region. Pain lasted three to five hours, accompanied by nausea, vomiting, chills, fever and perspiration. Pain sometimes extended down the course of the right ureter. Urine was turbid, of foul odor, and contained considerable gritty matter.

These attacks of right renal colic at first occurred about every three months, grew more and more frequent, till during the year 1900 they recurred about every two weeks. Attacks often followed a period of constipation. Four years ago he was told by a genito-urinary surgeon of New York that the prostate was diseased and was given prostatic massage for a time with some benefit.

For seven or eight years bladder irrigations have been given for long periods.

Four years ago he weighed 190 pounds, in spite of his recurrent illnesses, but during the last four years he has lost about 35 pounds. He now weighs 155 pounds, which is about the normal weight for a man of his height and build.

Three years ago he had the first attack of colic-like pain in the left lumbar region. A few similar attacks have recurred since.

In Germany three years ago his bladder was examined by the cystoscope and the ureters were catheterized several times by different men. He says that one surgeon advised operation upon one kidney, while Israel advised against operation and sent him

to Wildungen. Radiographs of the renal, ureter and bladder regions were also made in Berlin by two recognized experts without positive findings.

Dr. Woolsey sent him to the Presbyterian Hospital for observation in November, 1908, and I made a cystoscopy and ureter catheterization on November 7, 1908. To briefly state the result of this examination I will say that the bladder showed chronic cystitis. The ureter mouths showed nothing distinctive.

The urine from the right kidney was turbid; showed 1.4 per cent. urea; contained much pus, many bacilli and cocci. The urine from the left was slightly cloudy; 1.9 per cent. urea; contained a very small amount of pus, and many bacilli and cocci.

Radiographs made at this time showed no abnormal shadow in the right urinary tract and only a faint, suspiciously persistent, very small shadow in the region of the left renal pelvis on all plates.

Cultures showed the bacteria to be colon bacilli and streptococci. Chronic prostatitis was also found to exist.

Dr. Woolsey considered nephrotomy upon the right kidney advisable (which seemed wise to me also). Nephrectomy was considered inadvisable because of the comparative examinations of the products of the two kidneys and because of the pyuria and bacteriuria in this left side with the suspected calculus.

Right nephrotomy was done by Dr. Woolsey November 10, 1908.

After operation there seemed to be some improvement for a time, but the attacks recurred, with nausea, vomiting, chills, fever, and pain on the right side. A vaccine was made from the bacteria of his urinary tract and carefully and persistently administered for four months without apparent effect.

In February, 1909, Dr. Woolsey sent him to me, and since that time he has been treated by a method which has been found to be very valuable in some cases for relieving many of the severe symptoms, *i. e.*, by irrigations of the renal pelvis. For a year now I have been irrigating his right pelvis at intervals of from one to six weeks.

This right renal pelvis and dilated ureter contains constantly

about 45 cc. (over an ounce) of residual urine, which is not unusual (as Dr. Braasch, who is associated with the Mayos, has taught us). This urine is turbid, of a very disagreeable, foul odor and contains many crystals of indigo-blue (a photograph



FIG 1.—Right ureter, renal pelvis and pyonephrotic sacculations filled with argyrol.

of which is shown). The ureter and renal pelvis will hold without discomfort to the patient 78 cc. of injected boric acid solution. A radiograph (Fig. 1) of this renal pelvis and ureter show them distended with argyrol. (This beautiful radiograph is one of a stereoscopic pair made for me very kindly by Dr.

E. W. Caldwell. Reduced prints made from this pair of radiographs show fairly well the stereoscopic effect).

There is undoubtedly a stricture in the right ureter just about at the level of the pelvic brim.

The left kidney (Fig. 2) has been shown to contain a calculus of small size, probably (because of its position in the radiographic outline of the kidney) in a calyx; and the left renal pelvis is very slightly dilated; it will hold 25 c.c. without discomfort. Some of the blue crystals (indigo blue) have been obtained by the ureter catheter from the left pelvis also.

The irrigation of the right renal pelvis is done only when he begins to feel ill (nausea, eructations, chills, fever) and complains of pain in the right side, or of a severe burning sensation in an area about two inches square in the skin just above the middle of the right iliac crest.

For cleansing the pelvis I use boric acid solution and follow this by several washings with 5 per cent. protargol. Silver nitrate 1-1000 has been used as well as argyrol and collargol. A No. 9 French catheter is passed about ten inches within the ureter.

The severe attacks of pain and the periods of illness which kept him in bed or confined to the house for a week have been eliminated and he is attending to his business. He has had recently two attacks of left renal colic, when he passed a considerable quantity of blood, doubtless from the left renal pelvis.

Prostatic massage has been persisted in with some improvement in the condition of that organ.

What I should like to hear, if any will be good enough to consider this case, is some criticism of the general method of treatment thus far, and some views as to what we should do for this case in the future.

How long shall we persist in this conservative, palliative method of treatment? Shall we urge him to have the calculus removed from the left renal pelvis at the earliest possible moment to save the left kidney from further involvement with the infection already intrenched there, and, after removal of this calculus, shall we proceed to remove this right pyoneph-

rotic kidney and markedly dilated ureter, trusting that the left pyelitis will be cured after removal of its irritant calculus and that the left kidney alone will carry on all the renal function of the patient?



FIG. 2.—Small calculus seen in left (reversed in print) kidney, doubtless in one of lower calices.

This treatment, which makes him comfortable and able to work, has been persisted in while keeping constantly in mind the fact that we have here a mixed infection by bacteria of unknown virulence, a very poor right kidney, an infected left renal pelvis, a left renal calculus, chronic prostatitis (from which one or two drachms of pus may be expressed), and a general physical condition which has shown marked improvement under this non-operative treatment.

THE BUBO OF CHANCROID AND ITS TREATMENT

By CHARLES GREENE CUMSTON, M.D., Boston, Mass.

THE inguino-crural adenopathy, which is the result of an infection of the genital organs of the male and female, is usually termed bubo. A bubo occurs in more than fifty per cent. of cases of soft chancre and develops only after a certain lapse of time from the appearance of the initial lesion. Suppuration rapidly supervenes in most cases and the bubo takes on the appearance of an acute glandular abscess, with a considerable amount of inflammatory infiltration and adhesion with the skin.

A bubo is generally unilateral, seated on the same side as the chancroid, but when the ulcer is situated in the median line of the penis, for example on the frenum, it may be bilateral, because the infection travels by the lymphatic vessels of both sides. In some few cases the bubo has been found on the opposite side to that occupied by the ulcer, and this may be explained by an anastomosis uniting the lymphatics on both sides. These characteristics differentiate a bubo due to a soft chancre from that produced by the initial ulcer of syphilis. In the latter type the bubo is indolent, the glands are hard and only slightly enlarged, while they remain for months or even years after the chancre has disappeared. They rarely suppurate, and what is more, syphilitic inguinal adenopathy is quite often bilateral and autoinoculation of the pus gives a negative result.

The bubo of a chancroid appears as a tumor in the groin, of variable size, usually situated over the femoral vessels, but it may also be seated inwardly near the pubis, or frequently in the neighborhood of the iliac crest. One gland alone appears to be involved, but in reality several are diseased, but one of them, usually the most superficially seated, presents the most advanced pathologic change and it hides, so to speak, the less marked lesions of the other glands.

A bubo is, consequently, an *inguinal polyadenitis* and, as I

shall point out latér, this fact should be remembered, namely, that there are numerous infected glands which will undergo a suppurative process in their turn if not properly treated.

The diseased glands may infrequently extend into the pelvis, along the course of the large blood vessels. The glands are not alone the seat of the infectious process, because the cellular tissue surrounding them is also the seat of the inflammation and we consequently have an adenitis and a peri-adenitis. The process of suppuration commences in the centre of the glands, and if a gland is cut open shortly after infection has taken place, a softened yellow central spot will be found, offering all the signs of degeneration. The peripheral tissues will be found in a normal condition, but they in turn become inflamed by direct extension of the process. As to the capsule of the gland, which for a time limits the extension of the pus of the bubo to the surrounding tissues, it will later on be intimately adherent to the skin and finally give way, allowing the exit of the pus.

The pus of the bubo contains two distinct varieties of bacteria that are also found in the centre of the glands that are undergoing degeneration. We have, in the first place, various pyogenic organisms, such as staphylococci, streptococci and certain micrococci described by Dubreuille and Lasnet, all of which are met with in suppurative lesions. These organisms are carried by the lymphatics from the chancroid to the neighboring glands, just in the same manner as they would be from any wound situated on the genital organs.

Besides the above mentioned organisms the pus of the bubo sometimes contains the specific bacillus of the chancroid, which was demonstrated for the first time by Ducrey and Unna. It is met with in about twenty-five per cent. of cases of bubo.

The bacillus of Ducrey is small, short and pointed at the ends, while in its centre there is seen a rather transparent point which, apparently, indicates the commencement of segmentation. It is easily stained with strong solutions of methylene blue and is decolorized by Gram. The streptobacillus of Ducrey-Unna is often present in chains, which penetrate the spaces of the connective tissue and cells. But in the tissues of a gland it is found

infrequently and with difficulty, but it has been demonstrated there by Audrey and in the periglandular tissue by Krepting.

Up to the present time the bacillus of chancroid has given negative results when inoculated in animals and on artificial media. In quite a number of cases the pus from a bubo will be found sterile, both by culture and direct microscopical examination.

A bubo is termed virulent when by inoculation of its pus a chancroid is reproduced and this virulence is due to a specific infection of the bubo, that is to say, from the bacillus of Ducrey-Unna in the pus it contains.

Hunter, in 1782, was the first to perform an inoculation of pus from a bubo of chancroid and thus to reproduce a soft chancre, and he demonstrated that certain bubos were nothing less than chancres of the lymphatic glands. In cases of virulent adenitis the glands and surrounding tissues are apparently more rapidly attacked by suppuration, and when incised they are deep, irregular and with undermined borders. The frequency of purulent tracts under the skin explains why there sometimes is phagadenism and detachment of the skin after a bubo. According to Raff, the proportion of virulent bubos is only ten per cent., but this seems too small, and Buschke puts it at twenty-five per cent. Simple inflammatory bubos, which are not virulent, are easily differentiated from the others by inoculation, as they usually remain without result and only infrequently give rise to septic pustules, which cannot be inoculated in series, and whose pus never contains the bacillus of *ulcus molle*.

Ricord, who carefully studied the development of the adenitides of *ulcus molle*, recognized a single cause for the virulence of a bubo, namely, external contamination. From numerous experiments he found that the pus taken from the abscess and inoculated in man never gave rise to a chancroid, while pus taken some time after the bubo was opened was sometimes virulent and gave rise to an *ulcus molle* at the point of inoculation. Ricord and Strauss at a later date explained the above facts by admitting that there was a direct contact of the bubo with the secretion of the chancroid, and if the former was well pro-

tected from the secretions the virulent properties of the ulcus would not be transmitted to the adenopathy. This theory appeared to be too exclusive and the bacteriological examination of pus taken from bubos immediately after they had been incised revealed the presence of the bacillus of ulcus molle before there was time for contamination to take place. Many writers, among whom we may mention Audry, Kefting, Buschke, Dubreuille, have placed several cases on record, and Audry was even able to demonstrate its presence in a gland extirpated before suppuration had taken place. It may, consequently, be admitted that infection of the adenopathy by the bacillus of chancroid can arise at once, although this is infrequent and this infection takes place alone through the lymphatics. The specific bacillus reaches the inguinal glands in the same way as the ordinary organisms of suppuration.

In the lesions of the glands just mentioned the virulent character of the bubo has shown itself very shortly after the appearance of the chancroid, but there are some instances in which both lesions, chancroid and bubo, undergo their evolution without the latter being virulent from the start.

Inoculation with the pus contained in an adenitis at its beginning has given negative results, at least a chancroid has not appeared at the point of inoculation. The primary chancroid may arrive at a complete cicatrization without contamination of the glands by the secretion, either directly or by means of lymphatics. The bubo may, nevertheless, become virulent after the chancroid has healed, and at this time several cases are recorded in which there was secondary chancroidal infection of the borders of an incised bubo or of the bubo itself during evolution and where no external contamination had occurred.

These cases of latent virulence in bubos are easily explained if we bear in mind that a bubo is not a single diseased gland but is a *polyadenitis*. Under the gland first infected, but only by ordinary bacteria of suppuration, are to be found others containing the specific ulcus molle which, when they develop, will furnish a virulent pus that on inoculation will give a positive result, namely, a chancroid. An early extirpation of the entire

mass of glands surrounding the primary bubo will probably prevent a tardy chancroidal infection.

The various methods employed for the treatment of bubo are either *preventative* or *curative*, the former directed to the chancroid, which is destroyed by the cautery, thus attacking the virulent pus at its source; but it is only of use when the chancroid is only a few days old, before the lymphatic circulation has absorbed the morbid products. Of the curative treatments, some are employed to the adenitis before suppuration has occurred, the others are indicated when this process has taken place.

We will only consider some of the numerous treatments employed to prevent suppuration of the infected gland. They are rarely of much use, for the simple reason that there is no clinical symptom which will allow the surgeon to know before pus is evident whether or not a bubo will suppurate.

Rest in bed simply prevents any irritation that may arise from walking or friction of the clothing. Various applications, such as ichthyol, mercurial ointment, etc., have been employed, but are without any real value. Antiphlogistics, such as the application of cold poultices or hot baths, are only of use to relieve pain.

The abortive treatment, first employed by Broca, is simply an incision of the tumor before fluctuation is present. The gland is seized between two fingers and a knife is pushed to the centre. It is then withdrawn and a grooved director is introduced, and by making lateral pressure the pus will flow out along the groove. Pressure is kept up until blood issues, after which a compressive bandage is applied for a few days in order to expel whatever pus may form or until the little incision has become a fistula. The abortive method has also been employed by Audry and others, the only difference being that they make several punctures in the gland with the knife.

There are, however, two points in this method which are certainly not perfect. The first is that an early incision may be made in a gland which would not suppurate if left alone, and

secondly, the knife does not always penetrate to the centre of the gland.

Compression has had many advocates. It is accomplished by shot bags, trusses or bandages. Kollmann, of Leipzig, has described a compressive bandage which he claims has given him excellent results. A bunch of crude lamb's wool the size of a closed fist and enclosed tightly in a bandage is applied over the bubo, a spica is applied so as to produce firm compression over the ball of wool and at the same time to hold it in place.

Revulsion appears to have given better results than many of the foregoing methods. It can be produced by blisters, tincture of iodine, etc. Many surgeons have praised this method; Pirondi first applied a blister and then the tincture of iodine, while Malapert applied a sublimate dressing after the blister had formed. Personally I believe that a bubo taken at the very start, before any sign of suppuration has appeared, may be aborted by the application of a blister, and I have records of several such cases.

We now come to the consideration of the treatment of the bubo after suppuration has become established. It is very evident that the various abortive treatments above described do not prevent a suppurative process from occurring, and as soon as the presence of pus is manifest it should immediately be given exit. To accomplish this there are several ways of proceeding; some are conservative, such as puncture, aspiration or injections of some antiseptic. The more radical treatment is represented by caustics, simple incision (followed or not by a curettement), and lastly extirpation.

Puncture has already been mentioned as an abortive treatment, and Lehner reports several cases in which this treatment produced a cure of suppurating bubo within six days. After puncture he carefully compresses the bubo to bring out the retained pus, the skin is then washed and the cutaneous opening is covered with a moist dressing, which is frequently changed. After a few days the discharge loses its purulent character in most cases and finally only a drop of serum comes away. The walls of the abscess are in contact by this time and the opening

in the skin soon after closes. Raynaud claims excellent results by making the puncture with a very fine point of a therson-cautery.

Of aspiration I shall not speak, as I consider it very poor practice, and will pass to the consideration of injections of antiseptics, two of which have been particularly recommended, viz., benzoate of mercury and nitrate of silver.

Welander was the first, I believe, who injected benzoate of mercury into the cavity of bubos. He used this antiseptic in a ten per cent. solution; it produced no local inflammatory symptoms, but diminished the infiltration of the glands and put an end to the suppuration. This treatment is only applicable in cases where the bubo is not very fluctuating and when there is considerable suppuration resorption of pus cannot be obtained. The more virulent type is the only one in which this treatment is successful, and the virulent bubo will continue to suppurate in spite of the intraglandular injection.

Believing that all the salts of mercury are equally good, Balzer experimented with a solution of bichloride of mercury, 25 centigrammes to 50 grammes of distilled water, and obtained successful results.

Lang employs a 5 per cent. or 1 per cent. solution of nitrate of silver, which he injects into the cavity after evacuating the pus. The injections are repeated every day, after which an iodoform compress is put on and compression, by means of a bandage, is applied. Black, Cordier, and Bukovsky claim excellent results with this treatment. On the other hand, Spietschka, Brousse and Bothezat do not favor this method, as they have seen dangerous inflammatory reaction occur.

Iodoform has been employed as an injection on account of its antiseptic and anesthetic properties. A solution of iodoform in ether is injected into the bubo through a narrow puncture in the skin, either with or without evacuation of the pus, but it is very painful and must be repeated several times in order to obtain any therapeutic effect.

Otis, Fontan and Casteret combine iodoform with vaseline, and after giving exit to the pus the cavity of the bubo is com-

pletely filled by injecting this mixture. Each injection is followed by an occlusive dressing in order to prevent any external infection. In two cases I have injected a sterilized solution of iodol in liquid vaseline of the strength of 15 per cent. with good results.

Among other injections used for suppurating bubo I would mention solution of camphor, sulphate of copper, chloral, chloride of zinc and a mixture of camphor, salol and iodoform. Hot water irrigations have been recommended, the high temperature in the suppurating focus destroying the virulence of the pus.

The great fault of puncture and injection of bubo is that there is not sufficient drainage of the pus, and this is a most essential point in the treatment, because if it collects, especially in virulent cases, it will undermine the neighboring tissues and cause considerable destruction. To obtain a free exit of pus and proper drainage afterward, incision is the only means by which the result can be realized; but a bubo should not be incised until fluctuation is present, otherwise we might open an adenopathy which would not go on to suppuration. On the other hand, it is not good practice to wait until the presence of pus is manifest, because the skin may have already become undermined by purulent tracts and thus make a long convalescence.

There has been much discussion as to whether a small or large incision is preferable. Small incisions leave an almost invisible cicatrix, but they have the same inconvenience as punctures, and they should only be employed when the bubo is of small size and superficially situated. The pus should be pressed out, the cavity irrigated and packed with gauze.

A large incision is the best, however, as it gives free exit to the pus and a thorough irrigation and drainage is obtained. The length of the incision will, as a matter of course, vary according to the size of the bubo. The direction of the incision should always be made through the largest diameter of the tumor.

Simple incision is only indicated when one gland alone is the seat of a suppurative process and distinctly limited from the sur-

rounding healthy tissues, but in the greater number of cases it should be followed by curettement. When the abscess has been freely opened and the pus washed out, the entire cavity should be gone over carefully with a sharp spoon, which will remove all the adherent remains of the infected gland and the surrounding cellular tissue.

This treatment is indicated in a large number of cases and will be successful in patients presenting a single superficial gland. If there are several large glands situated underneath the incised bubo the result will be poor; but if after incision a careful digital examination be made and the surgeon can detect any underlying enlarged glands a more complete interference becomes necessary. After curettement the cavity is thoroughly irrigated and drained.

Curettement is also indicated in cases where a bubo has been incised some time previously and which will not heal. Secondary curettement is useless if, as is often the case, there exist other enlarged infected glands near the wound. In order to bring about a cure the latter should be removed.

Extirpation of the infected glands has been advocated by Mosetig-Moorhof, Lassar, Ulmann and others as the proper treatment when the bubo is deeply seated and composed of several glands. In such cases extirpation is the radical method, because all the infected glands are removed and all the suppurating foci are done away with.

The glands are exposed by an incision sufficiently long to allow the surgeon plenty of room. The glands are then removed with the fingers, because quite often small glands are intimately united to the sheaths of the vessels of the region and may sometimes hide the latter, which will be cut if a knife is used for enucleation. Lauerstein wounded the femoral vein in two cases during the extirpation of tubercular inguinal glands.

The glands should, if possible, be removed intact; but this is not always an easy matter, and it is better to first separate them on their sides and afterward from the bottom of the wound before attempting enucleation. The small, deep-seated glands will have to be removed with the curette. If pus escapes into

the wound it should be at once swabbed out with bichloride compresses to prevent infection of the wound.

A large mass of glands will sometimes necessitate an extensive dissection, to such an extent that Scarpa's triangle may have to be dissected and ligature of the saphenous vein may be necessary, in which case the vessel is first ligated with two large ligatures and the vein afterward divided between them.

In order to be successful the extirpation must be complete, the remains of the glands should be looked for behind the crural arch and inwardly toward the pubis. If they are all carefully removed, as well as their *débris*, no future trouble need be anticipated and the incision may be closed by either first or second intention. I have only closed these cases in which the enucleation was not very extensive and have had good results; for sutures I employed a wire composed of bronze aluminum that I have employed of late considerably.

When the adenitis is very large I prefer to drain, because free exit is thus given to the flow of lymph which often takes place after the operation. When we close the wound by sutures this discharge of lymph often prevents the cavity from closing. Ligature of the lymphatic vessels during the operation is very tedious and they are hard to see, although enlarged, while their walls are friable and are easily cut by the ligatures. I have never observed any post-operative accident follow extirpation, although several German surgeons report instances of severe inflammatory phenomena occurring a few hours after the operation.

As it is the worst cases of inguinal adenopathy that require extirpation, it is not surprising that cicatrization is not complete for several weeks, but if we take into consideration the size of the suppurating focus and the extent of tissue dissected, we should consider such a result as good. When extirpation is performed early the wound may be immediately closed, because the glands are still not greatly enlarged and the infectious process is far less great in extent.

Among the late complications which arise after the extirpation of the inguinal glands we may mention elephantiasis, pro-

duced by the obliteration of the afferent lymphatic vessels. Reidel was the first to report this complication, which occurred in the labia majora of a woman after extirpation of the inguinal glands. Jadassohn, Lassar, Mermet, Virchow and Neisser have recorded cases of edema of the scrotum. Koch has collected some cases of this complication and he concludes that elephantiasis is more frequent in the female, and more especially after the extirpation of the very large glands.

There are two organs that are particularly affected by elephantiasis, viz., the labia majora and clitoris. The affection may involve all the external genital organs and extend above the mons veneris. The diseased parts are thin and flabby, or on the contrary they are covered by papillomatous growths. In some instances the lesion extends to the mucosa of the meatus, vulva or vagina.

Elephantiasis is an infrequent complication and in his paper already referred to Koch only collected twenty cases. An elephantiasic edema of the limbs and scrotum may occur in cases of large adenopathies which have not been removed.

The various methods of treatment that have been described have each their particular indication and no one can be advised as a routine practice for each and every case of chancroidal bubo. The treatment should vary according to the evolution, size and number of glands composing the bubo and if suppuration is not present.

A non-suppurating adenopathy may be treated by rest in bed, compression and blisters, but suppuration cannot be prevented if it is already under way. These measures are, however, useful in cases where suppuration does not take place, as they appear to favor resolution.

As soon as suppuration is evident another line of treatment is indicated. Very superficial and small bubos are treated successfully with injections of benzoate of mercury, iodoform, etc., but attention should be directed to the free exit of pus and to guard against its retention.

Simple incision and drainage has a limited application, because, although giving exit to the pus, it does not act upon the

surrounding diseased tissues, which in their turn undergo supuration and extend. Incision followed by curettement or extirpation will radically cure all cases of suppurating bubo, the wound heals rapidly because all suppurating foci are eliminated. Free incision and curettement are indicated when only one gland is involved and when a careful digital examination shows that there are no other enlarged glands; but when several are infected, extirpation of the entire mass should be done.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY

A SIMPLE METHOD OF DETERMINING THE SIZE OF THE INNER VISUAL FIELD OF CYSTOSCOPES AND CYSTO-URETHROSCOPES

By LEO BUEGER, M. A., M. D.

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THE cystoscopist who wishes to avoid error in estimating the magnitude of objects in the bladder or urethra must not only have a knowledge of the optical principles underlying the construction of his instruments but should also have a notion of the approximate size of the inner visual field of each and every instrument which he employs. By the inner visual field we mean the virtual image, or the bright disc which the observer sees when the prism of the cystoscope looks toward the sky. The size of the field is dependent on the lumen of the telescope and on the magnifying power of the ocular. The surgeon who has not given the matter sufficient thought will not infrequently be led to regard a large inner field as indicative of a large outer or actual field. If we wish to attain a sense of accurate judgment in the interpretation of endoscopic pictures obtained with optical instruments, it is just as important for us to know the magnifying powers of our telescopes as for the microscopist to be acquainted with the power of the objective and ocular.

As far as the outer or actual field is concerned, this can be easily estimated for a given distance by holding the telescope fixed and parallel to the plane to be seen and marking off on that plane the most distant points that are still within the compass of the field of vision of the instrument. In this way the vista, or visual angle, is measured, the size of the actual field becoming larger as the distance of the telescope from the object increases.

The approximate size of the inner visual field can be measured in the following simple manner, no costly apparatus such

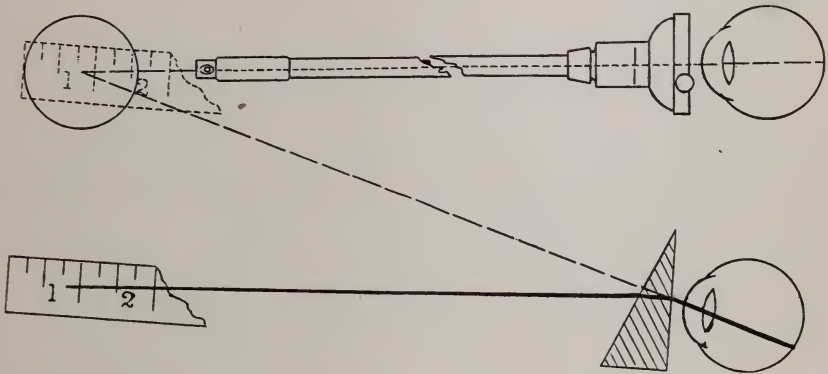


FIG. 1. Superimposition of images by means of a prism. The course of the rays is indicated on the left, and the displacement of the rule so as to coincide with the inner field (circle) is shown on the right.

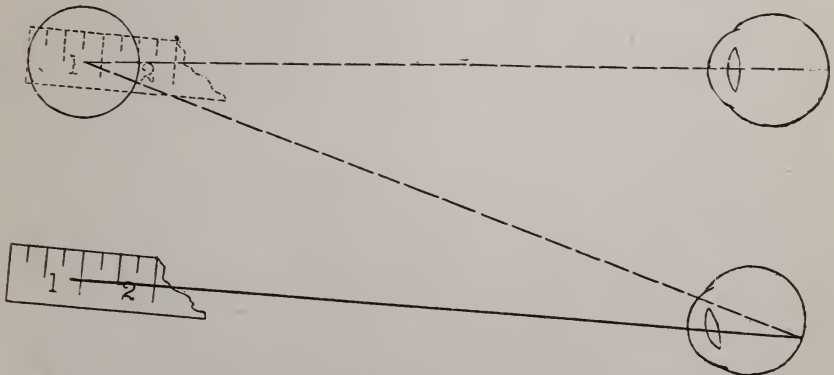


FIG. 2. Similar effect obtained in cases of latent divergent strabismus. The left eye is made to diverge more than the right for the sake of clearness.

as the *camera lucida* being required. The right eye looks through the telescope of the cystoscope or cysto-urethroscope and views a brightly illuminated sheet of white paper or the sky. The left eye is covered with a strong prism of about 10° , the base being directed toward the temple, and looks at a white rule 12 to 14 inches away. The objective of the telescope is separated about 4 inches from the rule. The rule and telescope are made to approach until the white disc seen with the right eye and the rule which is seen with the left are superimposed. The diameter of the inner field can then be read off with great ease.

A glance at the figures will explain the action of the prism. The rays of light being refracted toward the base of the prism, a displacement of the objects must occur in the sense indicated in the diagram, namely, toward the apex. Fundamental optical principles teach us that the nearer an object to the eye the larger the visual angle and retinal image; the further away an object from the eye the smaller the visual angle and retinal image. The measuring rule must therefore be held at a fixed point, which is best selected at 12 or 14 inches, the usual reading distance.

Although a prism is necessary for purposes of displacement in the case of normal eyes, the matter is quite different in that form of muscular asthenopia, or heterophoria, which the ophthalmologist terms exophoria. Here there is a latent divergent strabismus, and the power to allow the eyes to diverge can be utilized in the same way as the prism. In other words, under such conditions as the diagram 2 illustrates, a prism becomes unnecessary.

In the practical application of the method therefore the instrument maker or the cystoscopist can provide himself with a cheap frame, the left side of which carries a strong prism, 10° , the right eye remaining uncovered so as to permit of close approximation of the cystoscope. A rule marked off on a white card is all that is necessary in addition to the prism spectacle.

THE INVASION OF THE GONOCOCCUS OF NEISSER INTO BONES, JOINTS, TENDONS AND BURSÆ*

By JAMES PORTER FISKE, M. D., New York.
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PRIMARY infection of the mucous membranes as urethral, conjunctival, and nasal with the gonococcus may be followed by secondary invasion of deep and distant structures, accompanied by destruction and most distressing symptoms. Clinically the local symptoms at the place of secondary invasion are usually prominent, and secondary invasion of the gonococcus into bones, joints and tendons is common enough to require being borne constantly in mind. The isolated inflamed joint or tendon sheath with more or less infiltration and no particular history to account for same is so likely to be gonorrheal, that questioning frequently brings forth the story of a gonorrhea, or of a pre-existing gonorrheal infection. The grades of the accompanying inflammation vary. Sometimes they result in permanent damage or destruction of tissues attached, or there may be perfect restoration of function with no appreciable change.

We see clinically and we have reported cases of arthritis, osteo-arthritis, osteitis, periostitis, osteo-myelitis, teno-synovitis, bursitis, which means that all these structures are liable to the destructive influence of the gonococcus, and that such an invasion is indicative of a systemic or septic process.

The infectious arthritides are numerous and due to the presence of a specific organism in the joint or to the action of its toxins. The foci of infection may be in any part of the body. The streptococci and staphylococci in osteo-myelitis primarily attack the shaft of the bone, yet later may involve the joint. This is also true of the gonococcus. More or less common causes of infectious arthritis are the pneumococcus, and the

*Read at the Section of Genito-Urinary Surgery, New York Academy of Medicine, May 18, 1910.

organisms of rheumatic fever, scarlet fever, measles, and again the gonococcus. Also epidemic influenza and the infectious diarrheas.

There is a great variation in the course of these cases of gonorrheal complications. Some are quite mild, many quite severe. The gonococcus entering the circulation from a local focus sets up a so-called toxic condition with metastases into some of the deeper and far-seated structures as bones, joints and bursæ. The organism has been found in the blood repeatedly, but seems to exist there for a short time only.

Where complications recur it is probable that the original focus from which the infection spread is still active.

Gonorrheal arthritis is regarded as one of the septic arthritides. The cases vary from a mild type to one of serious joint disease. Marked exudation and infiltration frequently occur. This is a destructive process in severe cases. There is a tendency to formation of adhesions and often contractures. Spinal arthritis of gonorrheal type has been noticed. The knees, ankles, smaller joints of foot and wrists are more commonly affected. The presence of the gonococcus can usually be demonstrated. Frequently an acute polyarthritis, a metastatic inflammation of the joints occurs. The joints are swollen and painful. Serous exudate. Shreds of fibrin. Congestion of synovial membrane. Erosion of cartilage may occur. There is always danger of fibrous ankylosis.

Osteo-arthritis: Here the focus begins in the articular end of the bone, indicated by rarefaction and often accompanied by a diffuse infiltration. This may be followed by invasion of the articular cartilage and joint. The joint involvement is secondary. Thickenings or osseous spiculæ may form, due to periosteal proliferation. There may be complete destruction of joint with resulting ankylosis. X-ray determines the early rarefaction and so is of value in differential diagnosis.

Periostitis following a hematogenous distribution of the gonococcus occurs. Various clinical types have been observed, it is usually acute, may subside or become chronic. Denudation followed by molecular destruction may ensue, giving the patho-

logic picture of caries. The hematogenous distribution may infect the bone-marrow, causing secondary osteo-myelitis. I have had one case where the sub-periosteal exudate underwent gelatinous degeneration (periostitis albuminosa). These types are more frequently seen in the young—gonorrheal osteo-myelitis of the upper end of the humerus with later joint involvement has been seen by the writer. This case required free incision and curettage. The temperature was fluctuating. Recovery took place.

Gonorrheal teno-synovitis is accompanied by a serous or sero-fibrinous exudate. May terminate quietly under treatment, or may become chronic.

As the type of gonorrheal bursitis, we may take gonorrheal Achillodynia. Enlargement and thickening occurs with considerable sensitiveness, and may be very soon followed by the weak or flat foot, as the patient in walking and standing attempts to discover a position of ease. If the patient is treated ambulantly the arch of the foot must be protected.

Gonorrheal osteophytes have been noted in various regions. Spiculæ of bone causing disability and pain on plantar aspect of the os calcis have been noted. Their removal is necessary.

Many individuals seem prone to these complications and recurrences are fairly frequent. My present opinion is that persons subject to rheumatic joints are specially liable to gonorrheal joint involvements. I am reminded of the case of a young man referred to me for gonorrheal infection of both knees and ankles. Ten years before I had treated him for a rheumatic infection of the right hip-joint. At my first examination he had an osteitis of upper end of left tibia with involvement of the knee-joint. Great pain and contractures. It was necessary to correct by *brisement forcé* under ether, followed by plaster of Paris fixation. His urethral infection was treated by an expert. At the end of a number of weeks he was cured. Left knee-joint was limited to 15° motion.

Another case of great severity was referred to me by the late R. W. Taylor. Involvement of left knee and right ankle, characterized by great pain, redness and swelling. Left knee-joint, involvement of joint cartilages with contractures. Here

also it was necessary to employ ether and correct the deformity. Plaster of Paris fixation. The disease subsided leaving a useful leg with 20° motion.

Epidemic vulvo-vaginitis of gonorrheal nature in infants and little girls is apt to be accompanied by joint involvement. In one such epidemic in a children's ward I may mention a case of nasal gonorrhea with a complicating knee-joint, the gonococcus being found in the nasal secretion and the joint fluid.

The onset of bone or joint invasion is fairly acute, though not disabling at first. In severe cases with infiltration the pain is marked, and as a rule the pain is indicative of the severity of the attack. With an acute onset accompanied by pain, redness, swelling and some disability the patient is glad to stay in bed—and rest at this period is certainly imperative. The sub-acute cases are milder, but relapses are always liable to occur, so the duration of any attack is apt to be lengthy and in my opinion can only be shortened through rest combined with appropriate treatment.

With the subsidence of the attack certain results are frequently noted, such as adhesions, changes in the joining capsule, or even ankylosis. The formation of osteophytes following periosteal proliferation have been noted. These end-conditions continue to give symptoms and require special treatment.

If the gonorrhea is not under the care of a specialist when this systemic invasion occurs, it should promptly be so placed. As these special conditions under consideration are the result of a hematogenous distribution usually secondary to a urethral focus, the primary condition requires the skilful and intelligent treatment of the genito-urinary specialist.

Until the original disease is cured the complications may continue or relapses occur.

These invasions may be due to over-treatment or unwise instrumentation, but often, I believe, they are due to the virulence of the organism, combined with a special susceptibility of the patient.

CASE OF PERFORATION OF INTRA-MURAL PORTION OF LEFT URETER BY A CALCULUS*

By CHARLES S. STERN, Hartford, Conn.

THE patient, a man of forty-four years, had passed a stone eleven years ago about the size of a small bean. A second calculus traversed the ureter about ten weeks ago, with the usual symptoms of colic, etc., and was expelled from the urethra about a week later. The last attack began shortly afterward, being marked by frequent and intermittent attacks of colic, together with chills, and temperature rising to 103° and 104° F., which alternated with normal intervals free from pain and fever. At the time of observation his symptoms were frequent, urgent, and painful micturition, with the usual accompaniments. Cystoscopy demonstrated a stone lying on the bas-fond and an opening in the left ureter $1\frac{1}{2}$ c.m. above its natural meatus. This hole was 1 c.m. in diameter, with ragged edges and moderately inflamed. The right ureter was normal. I tapped the stone with the end of the cystoscope for the purpose of ascertaining its mobility, and then we arranged to perform a lithotrity the following morning. However, when the patient reported on time he presented me with this stone, which he had passed at midnight.

I report this case as an additional one of intra-mural perforation of the left ureter by a calculus; and because of the interesting cystoscopic picture presented of the opening formed by the calculus, through which it escaped into the bladder.

*Reported at Annual Meeting, American Urological Association, St. Louis, June 7, 1910.

EDITORIAL

PERMANENT AND SPASMODIC PARAPLEGIA IN CHRONIC UREMIA

Paralysis of uremia, such as has been described by Raymond, Chantemesse and Tenneson, and lastly by Baillet in his thesis (Paris, 1898), has for principal characters a mild intensity, frequently incomplete, varying from time to time, usually flaccid, with disappearance of the reflexes. It generally occurs in uremia, following interstitial nephritis. It is accompanied by convulsions and other uremic symptoms. Flaccidity is, however, not a constant symptom. Contractures with exaggeration of the tendon reflexes have been described. These contractures occur early in the process, appearing at the same time as the paralysis, or on the following day, and in these cases death rapidly supervenes, while at autopsy a large amount of serous fluid is found in the meninges, or the cerebrum is markedly edematous.

Pic and Roubier (*Lyon medical*, November 21, 1909) have described another form of paralysis occurring during uremia. This is a spasmodic paralysis, appearing with considerable rapidity in cases of chronic uremia having a slow evolution. The paralysis presents quite different characteristics from those of paralyzes usually encountered in uremic subjects. A pareto-spasmodic condition develops quite rapidly, which in the first place involves all the limbs. There is no period of flaccidity, and on the other hand the commencement is not sudden. There is no ictus, a fact which allows one to eliminate a focal cerebral lesion. Then this spasmodic condition undergoes a partial regression, the paresis becomes localized to the lower limbs, taking on the form of spasmodic paraplegia.

On the other hand the phenomena have always been more marked on the right; the increase of the patellar reflexes is more marked on the right, and, if plantar trepidation is looked for on this side, it is always found distinctly positive. The patellar

clonus is always more marked on the right, while Babinski's sign has been met with permanently only on the right side.

The paraplegia undergoes alternatives of aggravation and improvement. At certain times, which correspond to periods of more pronounced toxemia, these spasmodic phenomena are equally evident on both sides, and Babinski's sign may be found temporarily in both limbs. Lumbar puncture and blood letting improve the paraplegia.

One is consequently dealing with an abnormal uremic paralysis. Raymond, as far back as 1885, described permanent uremic paralyzes in elderly subjects, and he considers them similar to pseudo-bulbar paralyzes, except that the latter are not spasmodic. In a more recent work Alquier and Conos (*Revue neurologique*, 1907) have recorded, however, two cases of spasmodic paresis with increase of the reflexes and bilateral Babinski's sign occurring in two cases of chronic uremia. At the autopsy of these two cases, one found, contrary to what is the rule in uremia, central lesions in the form of small lacunæ of disintegration in the central gray nuclei and slight sclerosis with demyelination of the direct and crossed pyramidal bands. The pathogenesis of the symptoms is consequently complex and, according to the above-mentioned authors, there is a combination of uremic toxemia and arterial hypertension, which creates the necessary conditions for the development of cerebral lacunæ. For that matter, as far back as 1904, Castaigne and Ferrend stated that they had frequently found lacunar foci in the brains of patients afflicted with uremic paralysis, which became added to the other conditions produced by uremic intoxication and vascular sclerosis.

Pic and Roubier believe, nevertheless, that uremic intoxication plays an important part in the pathogenesis, the variation in the intensity of the spasmodic phenomena, their amelioration by lumbar puncture, likewise by bleeding, make this evident, as both these procedures relieve the uremic intoxication. As it is impossible to direct any treatment against the lacunæ of cerebral disintegration, it is to the uremic intoxication that treatment should be directed in order to obtain a favorable effect on the morbid phenomenon.

Review of Current Urologic Literature

RIVISTA UROLOGICA

MAY 15, 1910.

1. Radio Diagnosis in Aseptic Renal Lithiasis. By R. Della Vedova. (Concluded.)
2. Double Calculous Pyonephrosis in a Patient with all the Symptoms of Bright's Disease. Double Nephrolithotomy. Complete Recovery. By P. Heresco.
3. Forcippresure of the Renal Pedicle in Nephrectomy. By Dr. Nicolish.
4. Two Cases of Rupture of the Bladder. By Dr. De Favento.
5. Transplantation of the Vas Deferens into the Urethra. By A. Boari.

4. TWO CASES OF RUPTURE OF THE BLADDER.—De Favento reports two cases of rupture of the bladder which are of some interest. The first patient was a man aged 52, who after a fall in a state of intoxication complained of inability to pass water. A physician catheterized him and removed about 150 grams of reddish urine. On examination the hypogastric region was painful on pressure, especially on the right side. He was catheterized again and 100 grams of clear urine were removed. In the afternoon of the following day the pain in the abdomen became more acute and the patient was taken to the hospital. The diagnosis of rupture of the bladder was doubtful; 48 hours later his pulse became small and his general condition grew worse. A laparotomy showed the presence of a large tear in the anterior wall of the bladder. The peritoneum was intact. The patient died on the table. At autopsy fatty degeneration of all the organs was found. The case is interesting because the condition of the patient remained so good until the last day.

In the second case the patient was a man aged 24, who applied for treatment at a dispensary, complaining of pain in the abdomen and inability to urinate. The patient had been drunk the night before, but no history of injury could be obtained. On admission the patient showed pain on pressure over the lower part of the abdomen, slight meteorism, and the catheter removed a moderate amount of urine. During the next two days he was able to pass urine without any trouble. On the third day the pains became more severe, the skin and conjunctiva became jaundiced, the urine dark and reddish, the pulse was small and

frequent, but there was no fever, there was a marked ecchymosis over the inguinal region, the perineum and the scrotum. On the following day the pulse became rapid and weak, the temperature subnormal, the patient gradually sank into coma and died. On autopsy there was a moderate amount of fluid in the pelvis and some degree of peritonitis. The bladder showed a tear about the size of a five-cent piece. Investigation by the criminal authorities showed that the patient on the night before admission had been profoundly intoxicated and while trying to get up from the table slipped and fell upon the edge of a chair, striking the lower part of the abdomen.

5. TRANSPLANTATION OF THE VAS DEFERENS INTO THE URETHRA. —Boari suggests the possibility of obviating the loss of the sexual functions after perineal prostatectomy or in other pathological conditions, such as tuberculosis of the vesicles, etc., by transplanting the vas deferens into the anterior portion of the urethra. He attempted to perform this operation on three dogs, and having obtained satisfactory results, employed the method in a man as a sequel to a perineal prostatectomy. The patient was a man about 60 years of age, and the operation was performed under spinal anesthesia. An incision about four centimeters in length was made along the scrotal raphé, the cord was found and the vas deferens was separated. This canal was cut as high up as possible and its central end was tied and allowed to drop out of sight. Fine silk sutures were then introduced into the testicular end and the ends of the sutures were allowed to remain long; small plugs of whalebone were introduced into the ends of the canal. A metallic sound was then introduced into the urethra and was made to appear in the scrotal wound. In the prominent portion of the ureter thus obtained by means of the sound a transverse incision was made through the entire tissues of the urethra, one centimeter in length and two centimeters above the bulb; the sound was removed from the urethra and the end of the vas deferens with its little plug was introduced into the wound, the ends of the suture in the vas deferens were then used to sew the canal into place. In this case both the vasa deferentia were transplanted simultaneously and sewn to the same wound in the urethra. The two little plugs were removed, leaving the canals open. The patient made a good recovery. Fifteen days later the urethra was examined by means of a urethroscope and the openings of the vasa deferentia were found. A year later the patient was found to be in good health and to have normal ejaculations, save that he complained of slight pain in the region of the urethra into which the seminal canals had been transplanted.

RIVISTA UROLOGICA

VOL. I., No. 4, June 15, 1910.

1. Origin and Transformation of Vesical Papillomas. By F. Legueu and H. Verliac.
2. Two Cases of Sudden Death after Supra-pubic Prostatectomy. By F. Cathelin.

I. ORIGIN AND TRANSFORMATION OF VESICAL PAPILLOMAS.—Legueu and Verliac point out that a great deal of difference of opinion has been expressed of late regarding the probability of malignant changes in papillomas of the bladder. While some authors consider these tumors as practically always benign, others regard them as almost always indications of future cancerous changes. The authors, after a study of a number of cases, conclude as follows: A vesical papilloma is a tumor the origin of which is identical with the papilloma occurring upon the cutaneous and mucous surfaces of the body, as well as the glandular growths known as adenomas. The beginnings of these papillomas are detected in the form of microscopical epithelial lesions the origin of which is obscure. As a result of unknown causes papillomas may undergo transformation into epitheliomas, the change not only involving the papillary villi but also spreading to the vesical mucosa and to the bloodvessels. The recurrence of a papilloma after an apparently thorough operation depends upon the presence of epithelial changes at points remote from the base. The practical conclusion from these facts is that papilloma should be removed early and thoroughly. Early, because we wish to avoid possible malignant degeneration and thoroughly because we wish to avoid recurrence. The removal of papillomas through the cystoscope does not offer a safe method of treatment in these cases. The latter lies only in the radical operation through a supra-pubic incision.

2. TWO CASES OF SUDDEN DEATH AFTER SUPRA-PUBIC PROSTATECTOMY.—Cathelin reports that he has lost 2 cases during the past two years through sudden death from unknown causes after supra-pubic prostatectomy. He notes that in spite of careful examination of these patients as to their renal function, the presence of sugar and albumin in the urine and in spite of rapid and skilful technique in operating both these patients died suddenly apparently of asphyxia. He suggests that possibly these patients died of a pulmonary embolus due to the passage of a clot from the pelvic veins into the pulmonary artery.

ANNALES DES MALADIES VÉNÉRIENNES

VOL. V., No. 5, MAY, 1910.

1. An Attempt to Abort Syphilis During the Primary Stage. By Ettore Mariotti, Naples.
2. Suppurative Osseous Syphilitic Dactylitis (Spina Ventosa). By E. Gaucher, Paris.
3. Chancroid of the Bucco-pharyngeal Cavity. By Dr. Druelle, Paris.

1. AN ATTEMPT TO ABORT SYPHILIS DURING THE PRIMARY STAGE. —Mariotti investigated the efficiency of a method of aborting syphilis in the primary stage. Several authors have made similar attempts, but thus far with indifferent results. The method employed by the author was tried in six cases of primary lesions, and while as yet no definite conclusions can be drawn, the observations are recorded for the benefit of those who intend pursuing the subject further. In the method employed the author utilized not only the local action of mercury, but also the bactericidal effects of hyperemia. The method was as follows: Hyperemia was secured locally by applying for an hour daily a small dry cup over the chancre. If this failed to produce a marked hyperemia an elastic ligature was applied behind the chancre. Then an ointment of calomel consisting of from five to eight parts of the drug to twenty of lard or to ten each of vaseline and lanolin was applied. The local treatment was carried to the inguinal region and to the skin around the chancre by means of inunctions of mercurial ointment, the dose being one or one and a half grams a day. This treatment, however, produced irritation of the skin and therefore was abandoned in favor of injections of mercury cyanide. One-half centigram of the cyanide was injected in solution in one cubic centimeter of distilled water. These injections were given daily with an interruption of one day each week. The patients received thirty centigrams of mercury cyanide in the inguinal region in the average case. In addition, a solution of one-quarter centigrams of mercury cyanide in one gram of distilled water was injected locally close to the edge of the chancre. These injections were followed by a gentle massage, but in spite of this edema of the parts followed. For this the parts were treated with compresses containing 15 per cent. mercuric chlorid. The patients received on the average from twelve to fourteen local injections into the region of the chancre. The results obtained were satisfactory. None of the patients showed any other specific lesions in the course of a year. Eight months

after the treatment the Wassermann reaction was negative in four out of the six cases.

3. CHANCRE OF THE BUCCO-PHARYNGEAL CAVITY.—Druelle reviews the entire literature of chancroids of the mouth. These sores are very rare in this location. The least frequent location for soft chancroids of the mouth is the tongue, although a number of cases have been reported; next in frequency is the palate and tonsils. One case has been reported upon the gum. One explanation for the rarity of chancroid in the mouth is the high temperature of that cavity and the fact that its contents is constantly churned during movements of swallowing. On the other hand, chancroids of the mouth are far less apt to be overlooked than are chancres of that region, because the development of chancroids is always accompanied by marked ulceration, with considerable secretion, etc. The contagion in cases of chancroids of the mouth seems to be usually direct, at least this has been proved in a number of cases. In some instances indirect infection may occur, as in one case in which the patient's tonsil had been previously wounded by a fragment of bone, and the patient in trying to remove this fragment with unclean fingers soiled with chancroidal pus, inoculated himself. The sores are quite typical in cases in which they occur upon and about the tongue, but they are not so easily distinguished from other sores when they occur further back in the throat. The soft chancres of the mouth and throat seem to have a fairly benign character and do not tend to extend to any marked degree. The treatment of these sores is the same as when they occur in other regions of the body.

ANNALES DES MALADIES VÉNÉRIENNES

VOL. V., NO. 6, JUNE, 1910.

1. The Scientific Treatment of Secondary Syphilis. By Alex. Renault.
(To be continued.)
2. Acute Syphilitic Toxic-infection. By Drs. Gaucher, Paris, and Merle.
3. The Abortive Treatment of Syphilis. By H. Hallopeau.

2. ACUTE SYPHILITIC TOXIC-INFECTION.—Gaucher, Paris, and Merle observe that, in spite of the large amount of work done recently in connection with the parasite of syphilis, we know but little about the acute cases of this disease in which the patients die early as the result of a virulent infection. One thing has been noticed, i. e., that in newly

born children with hereditary syphilis it is quite easy to find large numbers of the organisms in all the tissues. This is much more difficult in adults. The case reported by the authors is interesting because it was followed closely from the very beginning of the disease until the autopsy. The patient was a man of fifty-eight, whose chancre appeared in August, 1908. In November, 1909, he applied for admission, showing a scar with some remaining induration, enlarged glands, and a widespread eruption over the body, together with some mucous patches upon the tonsils. Injections of mercury benzoate were prescribed.

On January 5, 1909, after receiving fifty injections of mercury benzoate, 2 cgr. each, he complained of headache, general depression and fatigue. The skin lesions had disappeared, but both thumbs showed involvement of the nails.

From that time on, until February 17th, the patient took 2 grms. of potassium iodide daily. From February 17th to March 15th he received twenty injections of the benzoate without materially improving the condition of his nails. On March 20th he had an apoplectic stroke followed by hemiplegia. He retained a certain amount of consciousness. The lesion was thought to be localized in the brain, and to be due to the rupture of a syphilitic artery. During the three days which followed three intravenous injections of colloidal mercury were given without effect. The patient grew worse on March 24th, showing the symptoms of collapse, facial paralysis and abolition of the pupil-reflex. The patient died three-quarters of an hour after these symptoms occurred. At autopsy a thorough examination of all the organs was made. A meningitis was found in the coverings of the cord as well as in the brain. The brain was congested, but showed no focus of hemorrhage or softening.

The patient in this case was a robust man with a fairly good previous history, who had received a thorough course of treatment with mercury and iodides. The case illustrates that mercurial treatment does not prevent the appearance of serious complications and even of fatal lesions. It was remarkable that nothing was revealed clinically as to the presence of serious involvement of the cord and brain envelope and of lesions in other organs during the patient's previous treatment. The lesions involved nearly all the organs, and consisted of vascular and interstitial changes and miliary gummas. The condition found resembled very closely that noted in infants who die of hereditary syphilis during the first few months of life. While in infants numerous spirochetæ are found in all the organs, none were discovered in this case in spite of thorough search. The lesion of the nervous system which caused the

hemiplegia was an acute myelitis diffused through the superficial portions of the white section of the cord. Spirochetæ were found in the cerebro-spinal liquid by means of the dark field method.

ANNALES DES MALADIES VÉNÉRIENNES

VOL. V., No. 7, JULY, 1910.

1. The Scientific Treatment of Syphilis in the Secondary Stage. By Alex Rénault. (Concluded.)
2. Suppurative Orchitis. By H. Malherbe.

1. THE SCIENTIFIC TREATMENT OF SYPHILIS IN THE SECONDARY STAGE.—Rénault, in a very thorough study in the therapeutics of syphilis, formulates a number of useful rules regarding the systematic treatment of this disease. The commonly accepted idea is that injections are the best method, but one reason why the treatment by mouth is inefficient is because it is not properly conducted. The author cites 12 cases treated with protoiodide in which the results were excellent, but the efficiency was noted only when the drug was given in doses of 15 to 20 centigrams.

As a result of the studies of these cases two methods seem to offer themselves in the treatment of syphilis. The first of these is rapid and the second slow. The rapid treatment consists in the injection of soluble mercurial salts, or of calomel. The slow method consists in giving mercury internally or according to the author's experience in the use of injections of grey oil.

Of the rapid methods, the best consists in the injections of the hino-iodide or the benzoate. Six patients were treated with this method. In all of these cases there was a secondary eruption in full bloom. In two patients the average duration of the eruption was 13 days and of the treatment 12 days, while the quantity of (metallic) mercury was 103 milligrams. In 4 other patients with syphilis of varying duration the length of the treatment was the same, while the dose of metallic mercury was only 93 milligrams.

Eight patients were treated with calomel injections. This gave very rapid result, one or two injections of 10 centigrams each being sufficient to produce the same effects as those credited to the soluble salts. The average duration of the treatment was 14 days; the amount of metallic mercury was equivalent to 126 milligrams. In two severe cases 170 milligrams were used.

In 10 cases pills of protoiodide were given. Of these 5 showed an

average duration of the rash of 22 days. The duration of the treatment averaged 16 days, the average mercury absorbed was 1.4 grams.

The last place in the scale of efficiency must be given to grey oil, which was used in 6 cases. In 3 of these cases after a treatment of 18 days' duration, consisting in 3 injections of grey oil, representing 326 milligrams of metallic mercury, the syphilitic symptoms did not seem to be markedly improved, and the treatment had to be changed.

The conclusions from these experiences are, in the first place, that whenever syphilitic lesions are present which the patient is naturally anxious to get rid of, the rapid method should be employed, either by means of soluble injections, or by the aid of calomel. It must not be forgotten that calomel injections are very painful in many cases. Relapses seem to be less frequent after the use of soluble injections. The use of protoiodide pills is more efficient than that of grey oil. The author, however, prefers to give the protoiodide in wafers, rather than pills, because he thinks that they are thus more readily absorbed. He adds a small quantity of opium and of quinine to the protoiodide.

The patient should be carefully watched, and mercury treatment should be suspended, not only when stomatitis occurs, but also whenever the patient's blood shows a tendency to marked reduction of the red cells. This anemia is usually accompanied by a diminution of the number of white cells. After the mercury has been suspended for a time the blood returns to normal.

ZEITSCHRIFT FÜR GYNAEKOLOGISCHE UROLOGIE

Vol. II., No. 3 (July, 1910)

1. A Catheterizing Cysto-urethroscope for the Female Bladder. By Leo Buerger, New York.
2. Changes in the Bladder in a Case of Partial Retroflexion of an Incarcerated Gravid Uterus. By G. Linzenmeier, Marburg.
3. Contribution to the Study of Ascending Renal Tuberculosis. By A. Bauereisen, Marburg.
4. Eclampsia and Renal Decapsulation. By C. J. Gauss, Freiburg.
5. Lavage of the Renal Pelvis. By Johannes Hartmann, Jena.

1. NEW CYSTO-URETHROSCOPE.—Buerger presents a description of his instrument, which is already familiar to American readers through his publications in this country.

3. ASCENDING RENAL TUBERCULOSIS.—Bauereisen studies the question of ascending tuberculous infection, both from a clinical viewpoint

and from the results of experiments on animals. He concludes that there are no clinical cases on record which prove conclusively that a tuberculous infection may ascend along the ureter into the kidney, nor are there any experimental data to prove such a possibility in cases in which there is no obstruction with the flow of urine. On the other hand, when a marked infection of the bladder exists, an ascending tuberculous infection may take place through the lymphatics, along one or both ureters. Even when the tuberculous process enters into the opening of the ureter, no ascending infection takes place along the canal, provided the flow of urine remains normal. It is only when the lumen of the ureter becomes obstructed by the formation of infiltrative masses of tissue that a tuberculous infection may ascend along the ureter to the kidney. The important conclusion from the author's investigation is that tubercle bacilli cannot ascend into the renal pelvis, provided that the urinary stream is unobstructed. When the bladder is tuberculous we can safely catheterize the ureters, provided we maintain strict asepsis. Infection of the ureter wall will not take place in such cases unless the catheter produces an injury of the urethral mucosa.

Another interesting point is that the bladder cannot be infected with tubercle bacilli so long as its lining is intact. Every manipulation in a bladder which might contain tubercle bacilli should therefore be conducted with the greatest care.

The advocates of the ascending infection theory of renal tuberculosis can cite but one single possibility of defence of this idea: The ascending flow of the bladder contents into the ureters. This is impossible under normal conditions. The back flow can take place only under conditions of pressure which are never seen in the human blood.

4. ECLAMPSIA AND RENAL DECAPSULATION.—Gauss considers the indications for the operation of decapsulation in eclampsia. On the basis of his own experience and of the reports of other observers he concludes as follows: There is a natural division of all the cases into two groups, the early and the late cases. The early cases are best treated by rapidly induced labor, after which decapsulation may be attempted, if the eclampsia continues and if two or more seizures occur. If in the early cases severe symptoms of poisoning are noted, such as prolonged convulsive attacks, early onset and prolonged duration of coma, threatening anuria, changes in the heart beat and pulse, cyanosis fever and jaundice, then induction of labor and decapsulation should be done in one sitting.

In the late cases emptying the uterus without any other treatment is indicated only when there are no signs of severe poisoning. Even in such cases decapsulation must be held in reserve and must be employed at the first sign of progressive intoxication. In most of the late cases the operation of choice is a combination of rapid delivery and decapsulation. Naturally there are cases which may be said to occupy the border line between the two groups. When in doubt, decapsulation should be favored. Decapsulation enables us to save many lives which otherwise would be lost.

5. LAVAGE OF THE RENAL PELVIS.—Hartmann considers the value of washing the pelvis of the kidney in pyelitis occurring in connection with pregnancy and labor and the puerperal period. Lavage of the pelvis has been used by many authors since it was first recommended by Casper. The technique of the method is too well known to need description, but an important point is the determination of the capacity of the renal pelvis. By this we mean that amount of fluid which can be introduced into the pelvis without causing any sensation of tension or pain. If the quantity of fluid used in washing is too small the entire pelvis will not be flushed out, while if the quantity be too large the patient will not only feel pain, but we may do direct damage to the pelvis and may even drive the infection into the tubules of the kidney. Some authors even go so far as to condemn the method of washing the pelvis because after such treatment there are at times chills and temporary aggravation of the clinical symptoms. In acute cases of pyelitis there is a serious question as to whether irrigation is indicated; in such cases it is probable that simple catheterization and allowing the catheter to remain in place for some time will serve all purposes, effectively draining the kidney and pelvis. After the acute symptoms have subsided, washing may be begun for the purpose of removing the masses of bacteria.

The results of this method of treatment have been excellent in the author's experience. The action of the lavage, in the author's opinion, is strictly mechanical. The injection of the fluid causes peristaltic contractions of the pelvis, thus effecting a thorough emptying of the cavity. It does not matter so much what particular fluid is used in the lavage. We may use sterile water, salt solution, boric acid solution or Wildungen water. Solutions of silver nitrate in various proportions are very popular. The author does not favor its use, inasmuch as the silver nitrate is converted into the inactive silver chlorid while flowing through the catheter itself, which contains chlorids which are derived

from the urine. Thus practically no silver nitrate reaches the pelvis. After many trials the author has come to regard hydrogen peroxide as the best solution for these treatments; he uses the brand known as perhydrol, employing it in one or two per cent. solution, or even in one-quarter or one-half per cent. solutions.

The irrigations should not be given too often, twice a week being sufficient, but the irrigations should be continued until the urine from the pelvis no longer contains any bacteria. This usually takes about four weeks.

The indications for washing the pelvis are next considered. It is evident that cases with large distensions of the pelvis and much pus cannot be well expected to improve under this treatment. When there is a palpable pyonephrosis, success may be expected only when the cavity is small and the condition is recent. Perhaps the limit of efficiency of irrigations may be said to lie in cases in which the capacity of the pelvis reaches 50 c.c. When large stones are present in the kidney, irrigations are naturally ineffective. The treatment is also useless in the presence of tuberculosis of the pelvis. In all other cases of pyelitis lavage of the pelvis is indicated especially in the chronic form and in those accompanied by bacteriuria. The cases with colon bacillus infection of the pelvis are especially amenable to this treatment.

A NEW USE OF EUGALLOL

Dr. Ehrmann (*Therap. Monats.*, May, 1910) reports favorable results with the use of eugallol in chronic diseases of the mucous membranes, especially in old gonorrhœal urethritis. The author calls special attention to the relative painlessness of the remedy. In proliferative chronic catarrh it diminishes the secretion, and a cure is produced by the reduction of the superficial epithelial hyperplasia. Pure eugallol often acts favorably in bleeding granulations, and either in the pure condition or diluted with oil it may be used in soft infiltrations, especially where the treatment with sounds is not sufficient.

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A CASE OF EMBRYOMA OF THE KIDNEY WITH INTERESTING FEATURES: FIBRINURIA; AND DISAPPEARANCE OF VESICAL TUMOR(?)

By GEORGE C. CRANDALL, M. D., and BRANSFORD LEWIS, B. S., M. D., St. Louis.

MR. FRANK S—o, aged fifty-five, married; family history negative. Personal history: Has had the usual children's diseases, malaria, pneumonia, gonorrhea; no evidence of lues nor of addiction to alcohol. Father of eight children.

The patient was strong and well previous to the fall of 1907, when he began to complain of tiring easily and frequently, suffered loss of appetite and loss of flesh to the extent of ten or fifteen pounds. He noted undue frequency in urination, especially at night, having to get up two or three times for relief. In May, 1908, he consulted Dr. Crandall, whose examination elicited the following:

Complaint of digestive disturbance, occasional pains in the abdomen not definitely located; bowels regular; no disturbance of the kidneys other than above mentioned. Color yellowish and anemic; tongue coated; expression of apprehension. Examination of the chest negative; of the abdomen, moderate amount of subcutaneous fat; no enlarged veins. The liver extended about three inches below the costal margin in the mammary line; its surface and margin smooth. Kidneys not easily palpable. Test meal gave free hydrochloric acid 18, total acidity 26; few epithelial cells, numerous bacteria and yeast, no blood or pus. Provisional diagnosis, cirrhosis of the liver; later revised to malignant growth in that organ, with metastases.

During the following summer the patient complained more of urinary disturbance, of frequency, difficulty, and in the fall of obstructed urination. He was catheterized by Dr. Crandall, who drew 15 ounces of bloody urine, without clots, from the bladder. At intervals after that he passed bloody urine and occasionally had to be catheterized, but this necessity disappeared, and for the most of the year before he died there was only occasional tinging of the urine with blood and occasional passing of shreddy material.

Cystoscopic examinations were made by Dr. Lewis on the following dates: December 24, 1908; January 4 and January 9, 1909. The demonstrations being made at the Genito-Urinary Clinic of the St. Louis University Medical Department, fully twenty or more physicians were witnesses of the findings, from which there was no dissent expressed. Extending across the whole of the posterior wall of bladder, apparently attached to and growing from the region of the bas-fond, and covering both ureteral orifices, was a large, dark brown, solid tumor-like mass (see plate). It was streaked and mottled with whitish areas, as shown in the water-color sketch, made at the time by the artist of the university, Mr. Tom Jones. It seemed to be immovably attached to the floor of the bladder, as attested by the introduction of a ureteral catheter, with which it was touched and pushed. No view of the ureteral orifices was obtained, and consequently no further effort was made to catheterize them. The remainder of the bladder seemed healthy.

The tumor was interpreted as a solid malignant growth, secondary to the original one in the liver, and it was not deemed advisable to resort to any surgical interference on its account.

About this time it was noticed that the urine of the patient on standing became solidified into a jelly-like mass. For the first hour or so the coagulum was so firm that the glass in which it was contained could be inverted without releasing the content. Later a gradual separation between the solid and fluid parts of the urine would occur, the clot occupying about one-third or one-half of the volume. Specimens remained thus in bottles for months at a time. This marked fibrinuria lasted up to the time of the death of the patient, April 3, 1910.

Following the several cystoscopic examinations mentioned the patient went to his home and was lost sight of for nearly a year. He then returned to Rebekah Hospital, showing evident deterioration in health and physical condition. The fibrinuria was as prominent as before. While not complaining of vesical symptoms, in view of the previous existence of the mass in the bladder it was considered advisable to make another cystoscopic examination, which was done on February 15, 1910. What was our astonishment to find the organ clear of any foreign body, tumor or mass; the floor of the bas-fond visible at all points and showing nothing more than a moderate congestion of its mucosa, near the median line. Both ureteral orifices were in plain view and of normal appearance.

The patient, whose intellect seemed to have participated in the evident decline, could only say that latterly he had not suffered from the frequency and difficulty in urination, of which he had formerly complained, but it was observed that the urine at times showed masses of material of indefinite structure. Another cystoscopy made at a later date confirmed the above findings.

Following this there was gradual weakening and decline to the time of his death, in April. Gross findings of the autopsy:

Embryoma of the right kidney and supra-renal capsule almost as large as a child's head; its functioning capacity evidently destroyed. Left kidney normal excepting moderate compensatory enlargement. Both ureters, bladder and prostate normal. No indication in the bladder of the mass previously observed. Secondary metastatic involvement of the abdominal lymphatics in the neighborhood of the right kidney. Numerous secondary growths in the liver, especially in the right lobe and in the regions of the ducts and the large vessels. Stomach normal. Metastatic growths found in both lungs, especially in the lower lobes.

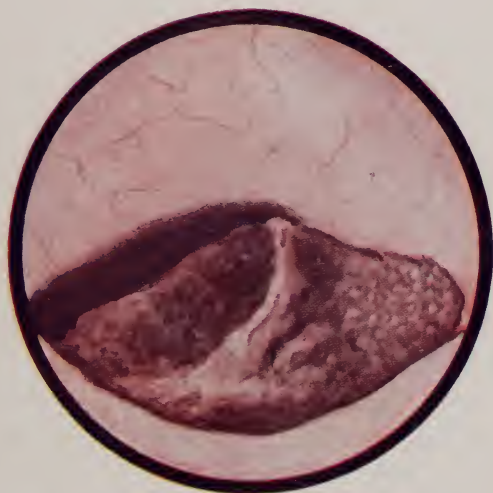
The question naturally arises in this case as to whether there was spontaneous disappearance of a real tumor of the bladder or the breaking up and expulsion of a more or less organized blood clot that might have simulated a solid tumor?

Medical history is not without records of the spontaneous disappearance of vesical tumors which, through varying influences, have broken from their pedicles and have been expelled from the bladder with more or less difficulty (Blum: *Zeitschrift fuer Urologie*, 1909, Band III, page 124). Mankiewicz (Casper's *Vortrag, Berliner klin. Wochenschr.*, 1908, p. 328) relates an instance in which through cystoscopy he established the existence of two papillomata, a larger and a smaller, in the neighborhood of the left ureter. After two years the patient returned to him on account of some other complaint; as a matter of interest cystoscopy was repeated and no tumors were to be seen. Nitze and Ultzmann have recorded instances of spontaneous disappearance of tumors. In a case of Victor Blum (*ibid.*) the patient brought a small papillomatous tumor, preserved in a bottle of alcohol, claiming that it had passed through the urethra, together with the escape of bloody urine. Cystoscopy showed a spiculated stone in the bladder, together with the stump of the pedicle of a papilloma. Supra-pubic cystotomy enabled the removal of the stone and also the confirmation of the cystoscopic evidence. The remainder of the papilloma was identified and removed by excision. The rough, spiculated stone was deemed instrumental in rupturing and releasing the stone from its pedicle.

Confirming the evidence of a secondary tumor, in our case, rather than an organized blood clot, we have the history of frequency and difficulty in urination *preceding* the hematuria, and the fixed adhesion of the tumor or mass to the wall of the bladder—although no pedicle was ever seen. On the other hand, in the fibrinuria was furnished the possibility of coagulation or clotting of the urine within the bladder, even before the bleeding occurred; and it is further possible that in the process of organization the mass became adherent to the bladder wall in the manner observed through the cystoscope.

Though the questions at issue are not satisfactorily solved the case furnishes features of much interest, and also adjures to more precise and conclusive investigation in similar instances in the future.

PLATE I. To illustrate the article by Drs. Crandall and Lewis



Cystoscopic View of the Tumor that Disappeared

POST-OPERATIVE TREATMENT IN PERINEAL PROSTATECTOMY*

By W. N. WISHARD, M.D., Indianapolis, Ind.

THE post-operative management of prostatic operations has such direct relation to the handling of these cases prior to and during the operation that it is difficult to discuss it separately. Careful preparatory treatment obviates a great deal of the anxiety and care incidental to the subsequent handling of these cases, and perhaps it may be admissible in this connection to emphasize the observations of the writer upon the relation of careful attention to local and general conditions before operation as having a direct bearing upon the things which may or may not have to be done following operation. In over two hundred operations upon the prostate it has been the effort where possible to secure drainage by catheter anchorage during a greater or less length of time before operation, and where the anchorage of a catheter could not be borne, to have recurrent catheterization as systematically followed as possible. Night drainage and periodical catheterization during the day has been found especially advantageous, as it does not prevent exercise during the day and secures better rest at night. Relief of bladder irritability, improvement in the condition of the urine, especially in the diminution of the amount of pus, epithelial debris, and improvement in the specific gravity, reaction, the odor, and the per cent. of urea have been usually observed where this plan has been followed. Continuous night and day drainage has been used in many cases, and if the patient is under proper control this can be done by wearing a urinal during the day or by clamping or tying the catheter and releasing it at comparatively short intervals for emptying or irrigating. Also attention to diet, general hygiene, and the administration of supportive remedies before operation, the after-handling has seemed to be a matter of less difficulty than otherwise. Where no improvement or but little has followed careful preparatory treatment the writer's

*Read before the American Urological Association, St. Louis, Mo., June 6, 1910.

cases have involved greater surgical risk and consequently more after-care.

When patients are put upon the operative table with a bladder that has been functionally rested and relieved by previous treatment, and if the upper urinary tract has been washed out by previous drinking of water and colon flushing, the amount of shock and renal disturbance following operation has been less.

As bearing upon the post-operative handling the writer, especially for the past two or three years, has tried to limit the period of anæsthesia as much as possible by having everything ready beforehand and expediting the operation as much as practicable. Ether is used, followed by oxygen at the moment the operation is completed, and in some cases the two have been combined or given alternately. During anæsthesia normal salt solution is given by hypodermoclysis in practically all cases, and the heart's action further supported by the previous use of strychnia, of which $1/20$ of a grain is usually given just before anæsthesia is commenced. The nausea and marked depression following prostate operations, and the period of post-anæsthetic stupor has been greatly lessened by the routine use of oxygen immediately after withdrawal of the anæsthetic, and the patient is usually taken to his room with good color and pulse and a warm body surface, and certainly in better condition than where oxygen has not been used.

Control of hemorrhage after operation is best secured by proper packing and some sort of drainage device which will insure continuous in and outflow and in which the stream is so graduated that the inflow shall not be too rapid and cause distention of the bladder in the event of occlusion of the outflow tube by blood clots. The size of the inflow tube should be much smaller than that of the outflow tube. In this connection the tube devised by the writer's assistant, Dr. H. G. Hamer, described in the February, 1910, number of THE AMERICAN JOURNAL OF UROLOGY, has answered a most excellent purpose. Soft rubber tubes do not always afford security in drainage because of the danger of partial occlusion of the tube from the surrounding packing. The Hamer tube, being of metal, not only affords a reliable guide in the insertion of packing, but by

its firmness gives a certain amount of added pressure and rigidity to the packing and thereby lessens somewhat the amount of packing necessary. The use of two rubber drainage tubes or a two-way rubber catheter will answer fairly well in many cases if the tubes are of proper proportionate size, one being small and the other large. Tubes having an equal inflow and outflow calibre are not safe or satisfactory. Some ten years ago the writer began using two rubber catheters, one large and one small, which he had had vulcanized together. This tube was shown during the reading of a paper by the writer before the New York Branch of the American Urological Association, February 7, 1906 (*AMERICAN JOURNAL OF UROLOGY*, June, 1906). Prior to that he had used a large and small catheter inserted together and held in position by a safety pin. The latter, and subsequently the vulcanizing of two tubes, secured fair drainage, but the surrounding packing by this method was not as satisfactory as secured with the Hamer tube. The latter gives ample outflow calibre, and if it should become occluded by blood clots a small soft rubber catheter can be passed through the large tube into the bladder while irrigation is progressing, and it is usually very easy to dislodge clots in this way if they occur. In connection with the drainage it is important to see to it that two-way irrigation is commenced the moment the patient is put to bed after removal from the operating room, and that the satisfactory working of the irrigation apparatus should be tested before the patient is removed from the operating table. An interval of fifteen or twenty minutes immediately after removal of the patient from the operating room is sufficient time during which enough clots may accumulate in the bladder to cause a great deal of trouble. The last thing done before the patient is taken from the operating table to his room and the first thing after he is put to bed should therefore be two-way irrigation. Ordinarily it should be continued for from two to four hours, or longer if necessary, the amount of flow being regulated by the height of the irrigator tank and the thumb-screw cut-off on the tube attached to the inflow. Usually within two or three hours the drainage is so perfectly clear that continuous drainage may be suspended and frequent brief irrigations substituted. Dis-

placement of a drainage tube and consequent interference with irrigation is almost invariably due to a failure to properly place and adjust the primary dressing. Whether a safety pin or a shield in the case of rubber tubes, or a metal disc in case of solid tubes is used, but very little gauze should be placed between the perineum and the safety pin or other securing device. Two or three thicknesses of thin gauze is sufficient, and it is better to use none at all than too much, as its inevitable tendency is to displace the tube in lifting or moving the patient. A heavy gauze packing outside the securing device is, however, important, and should be supplemented by one or two hard-folded towels, and the outer one of the towels folded in three-cornered fashion like a diaper, and over this a firm T bandage applied, the security of which is further assured by pinning the protruding ends of the last towel together over the perineal straps of the T bandage. Careful bushing behind the scrotum with cotton or gauze at the moment the T bandage is tightened is helpful in holding the testicles well forward and avoiding sagging, which otherwise may be followed by epididymitis. On changing the dressing and removing the gauze the morning following operation the metal tube above referred to is also removed and subsequently a single soft rubber drainage tube used. In doing this the inflow metal tube is unscrewed and removed and the outflow metal tube left in position while a large rubber tube is inserted through the latter into the bladder. The drainage capacity of the rubber tube is then tested by irrigating and the outer end of the rubber tube is then held firmly with the left hand while with a slight rotary motion the right hand withdraws the metal tube from the bladder over the rubber tube, leaving the latter in position. The gauze packing is then slowly removed by grasping the outer end of each piece with a pair of forceps and slowly twisting the loose gauze into a small cord. Three or four hours before the change of dressing the attendant is instructed to inject 3 or 4 ounces of sterilized sweet oil into the bladder and to close the outflow tube for ten minutes. The oil thus injected finds its way around the drainage tube and to some extent is absorbed by the gauze and makes the latter much easier to remove, and consequently lessens the danger of bleeding when the packing is

removed. In addition oil is also injected onto the gauze around the soft rubber drainage tube after the latter's insertion.

While not intending to discuss the technique of enucleation, it is proper to say that the writer has almost always used a median perineal incision, and has usually entered the prostatic capsule laterally at its apex. After the insertion of the drainage tube and the packing, the wound is closed by suture in front, and if necessary behind the tube, and this has ordinarily given no difficulty in the removal of the packing after the insertion of the rubber drainage tube and the removal of the metal tube over it, and it has had the additional advantage of leaving a very small scar and avoiding perineal fistula. A permanent perineal fistula has not occurred in any of the writer's cases, although occasionally the opening has been stubborn in not completely closing for a time.

That shock and hemorrhage are profoundly influenced by the adjustment and subsequent handling of the drainage apparatus may be stated as an apology for giving in detail some points which, although often discussed, do not always seem to be fully appreciated.

Where post-operative shock is evident and marked depression, hypodermoclysis or the opening of a vein and the transfusion of normal salt solution has been followed, and in a few cases adrenalin has been added to the solution introduced into the vein. In two cases where shock was profound 1 dram of adrenalin was added to about 1,000 c.c. of normal salt solution and seemed to exert an immediate and strikingly helpful influence on the heart's action. In other cases a smaller quantity of the adrenalin has been used with the normal salt solution by hypodermoclysis. In the two cases where a large quantity of adrenalin was used there was a marked chilling of the surface of the body within an hour afterward, necessitating the careful application of hot blankets. The handling of the patient has been greatly facilitated by the separate and complete wrapping of each leg in blankets, and this also facilitates the handling of whatever drainage apparatus may be employed. The blanketing and also the normal salt injection contributes to profuse sweating, but if marked this is usually controlled by

the hypodermic use of atropia. The early resumption of regular diet, frequent change of position of the patient, the use of increasingly smaller drainage tubes, to be replaced as soon as possible by drainage catheter in the natural channel, are desirable. The question of getting the patient up early is, the writer believes, to be fairly regarded as still debatable. Getting the patient in the semi-upright position the first or second day following operation by a properly adjusted body support has seemed both beneficial and desirable in the writer's experience, but in no case has he ventured to get the patient on his feet the day following, or even the second day following a prostatectomy. Perhaps the writer's views on this question may be somewhat influenced by the fact that in one case where a patient was apparently in perfect condition he had him put in the semi-upright position on the second morning following operation and an hour later the patient died from embolism. Frequent change of position and the early resort to the semi-upright position have, however, been constantly regarded as of great importance.

In closing it may be proper to add that permanent incontinence of urine has not followed in any of the writer's cases operated by median perineal incision. In a number of cases there has been temporary incontinence, but the systematic and persistent use of dilatation of the prostate urethra and vesical orifice by Kollmann's dilator has relieved the incontinence. One case where dilatation was not resorted to incontinence persisted for several months, but this patient, who lived in a neighboring State and could not be seen regularly, was relieved by the passage of large size steel sounds by his family physician.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY

UROLOGICAL ATROCITIES*

By VICTOR G. VECKI, M. D., San Francisco, Cal.

WHOEVER handles the various diseases of the genito-urinary organs to any extent will bear me out in the statement, that the number of patients damaged by various manipulations in the urethra is enormous. The injury is

*Read before the San Francisco County Medical Society, September, 1910.

mostly done by inexperienced hands, but often enough by operators trained to a mechanically perfect technic.

This time I have no intention of considering the criminal side of the question, the shady transactions of the quack and the charlatan, but only intend to discuss a few of the so-called legitimate and generally accepted therapeutic measures which in reality are most glaring and most common sins against the genito-urinary organs. It may not be out of place to mention right from the start that I do not think I can be entitled to a stone-thrower's license, and that the arraignment is directed solely against thoughtlessness and heedless copying and perpetuation of old practices.

It is now generally claimed that the medical profession, and to some extent also the public at large, have awakened to the realization of the seriousness of specific infections of the urethra and its many possibilities and consequences. The old prejudice, however, that to treat yonder trifle, commonly called "clap," is something beneath the dignity of a great physician, is still very much alive. Else how were it possible that the number of practitioners who prescribe perfunctorily upon the patient's self-made diagnosis of gonorrhœa hardly ever grows less, and, though censured so frequently, it is still considered superfluous to pay proper attention to the selection of the syringe and instruction of the patient in its use whenever injections are advised? And what is even more significant, how were it possible that our most renowned genito-urinary surgeons, the great men, those with an international reputation, very seldom condescend to treat acute gonorrhœa, and that only when they really must, as one of them expressed himself a little more than a year ago, at the meeting of the California State Medical Society at San José?

In opposition to the many who think that acute gonorrhœa is not worth while treating are the fellows who jump at it with enthusiasm and *cum furore*, as if they were bound to destroy the patient's natural defences and to help the gonococcus to penetrate into the deeper layers.

Toward the end of the seventeenth century Lallemand published his famous work "Pertes séminales" and reported his

brilliant and prompt results obtained in various ailments, including what we would term now sexual neurasthenia, by means of a cauterization of the caput gallinaginis with a lapis stick or caustic holder that formed part of a specially constructed instrument.

We can easily understand why Lallemand had such excellent results. He was at that time the only physician of renown who condescended to occupy himself with the different forms of sexual weakness, he was, so to say, the only genito-urinary specialist in the world; patients were flocking to him from all parts; we know how easily some of the neurasthenics are sometimes influenced by physicians whose authority they respect. Lallemand was the inventor of his method, he saw the results in a rosy light, reported on them enthusiastically; there was no one with authority to contradict him, no one to criticise or hurt him; he became famous. Is there any wonder that his success and glory disturbed the peace of mind of many a urologist in the eighteenth century? And so Dittel came with his portement, Ultzman, Guyon and others with their deep urethral syringes, and up to this time 90 per cent. of physicians are armed with some such appliance, and whenever an unsuspecting patient's morning drop does not disappear swiftly it seems to be the duty to introduce some kind of an instrument into the deep urethra, and flood it with a solution that burns like the everlasting fire and makes a splendid impression upon the sufferer, who consoles himself by saying, "Now, that ought to cure!" When in consequence the conditions become worse, the discharge more copious, there is another consolation ready, "The strong injection is bringing it out."

One typical case may serve as an example: A business man fell in love and quite naturally conceived the idea to get married. He proposed and was accepted. Accidentally he thought of a slight discharge left over from a case of gonorrhœa which was treated with a great deal of indifference by his family physician, and finally almost cured by a North Beach druggist. The loving lad did not think that little bit of a discharge amounted to much, as it caused him hardly any inconvenience, but he had heard that sometimes a bride is infected by her husband who

thought he was cured, and as my office was conveniently near he thought he would see me and make sure that he was all right. When I told him that he had a large calibre stricture and prostatitis, that he was in need of treatment, and at the same time refused to state in how many days he would be positively cured, though he offered to pay for a short treatment as much as a long one would cost, he did not keep his next appointment. Two months later I saw him again, after he had treatment at the hands of an energetic therapist. Unfortunately this one just at that time received a brand-new urethral endoscope from a Rochestér firm, and the patient received the full benefit of a trial of the neat and convincing-looking appliance. A small spot that just needed a little "touching up" was discovered, that same spot had to explain the rather copious bleeding that followed the instrumentation, and to stop that bleeding a deep urethral injection was given. This one burned atrociously, the tenesmus following kept him for nearly an hour on the water-closet, every drop of urine painfully expressed burning its way through the urethra bringing tears to his eyes. The following night was terrible, tenesmus and priapism combining until a hypodermic of half a grain of morphine brought relief.

While at the first visit a steel sound, French, No. 27, passed easily, I could now only after patient endeavors introduce an elastic bougie, No. 19, the patient having in addition to his former troubles a deep urethral stricture.

At every occasion I keep on repeating, "*Any solution which could not be applied to a person's cornea has at no time any business in any one's urethra.*" I don't care if you say you heard that before, I wish I could scream it from the highest places, and am only sorry that my voice does not reach far enough.

And how can we expect that the average physician shall have pity on his fellow-man's urethra when the highest authorities still preach the gospel of burning? While Zeissl mercifully does not go beyond a 1 per cent. nitrate of silver solution, Frisch goes from 2 to 5 per cent. nitrate of silver and 3 to 5 per cent. of sulphate of copper. Keyes thinks "It is not wise to use the nitrate stronger than 5 per cent. for fear of its caustic

action." Wisely he adds that "Even that strength often produces a temporary intense irritability of the bladder with bloody urine."

Our great master Neisser begins to see that "the continuance of irritating injections favors the growth of the gonococcus by maintaining serous infiltration of the urethral mucosa," and it were a blessing if he left out the word "continuance."

Besides, what does any one expect to accomplish by applying a few drops of any kind of a solution to the deep urethra when all kinds of germs have crept into urethral glands whose ducts would surely not absorb the slightest particle of the fluid even if they were not partly or completely plugged? It would be laughable were it not so painful to so many poor fellows under treatment, and besides so deucedly harmful.

One of the most popular instruments is the urethral sound, and it is certainly a conservative statement when I claim that it is used ten times oftener than really necessary. While it surely ought to be reserved for those who actually need it, there is no harm done if a sterile, properly lubricated sound of proper size is correctly introduced.

As we do not intend to discuss the criminal side of the question, we do not have to contemplate the introducing of a sound that was not previously sterilized by heat; we almost could pass by the creating of false passages, were it not that it happens so frequently and that it so banefully complicates cases of strictures in the posterior urethra and of prostatic hypertrophy.

False passages are almost invariably done with solid, fine-calibered and pointed instruments in the hands of operators who use force and lack the higher sensitiveness of their Pacinian bodies.

One of the most common sins against the urethra is the forcing of the passage of an instrument whose calibre is too large. To determine the size of a sound to use is not always so easy. The meatus may be misleading in either direction, and a mistake is easily made. The patient will frequently object to any size, and if too large an instrument was selected it is by far better to pocket the slight humiliation of the: "I told you it is too big," than to lacerate the urethra.

The progress made in urology and principally in the therapy of the various diseases of the urethra due to the various urethroscopes, while modest, is certainly gratifying, but the instrument fairly useful in expert hands is very dangerous if used without discretion, and is responsible for many a laceration, followed by deep-layer infection and scar formation. An example to what aberrations it may lead is the ultrascientific method which was recently proposed as "a quicker and better way to remove the top of the hypertrophy of the Verumontanum with the sharp edge of the deep urethral tube."

It would take a good-sized volume to do justice to the subject, of what should not be done to the genito-urinary organs; it will surely be written by some one sooner or later, and as I have maybe said too much already, I beg the privilege before finishing of a few questions.

What does the man who irrigates the gonorrhœal posterior urethra with the aid of a catheter expect, unless it is an acute prostatitis?

How is it possible that with our present knowledge of the bacteriologic flora of the urethra so many still dare to introduce instruments into and even dilate it without irrigating before and after?

And if the average practitioner waits until urinary symptoms develop before anything is done for a stricture, and thus, as V. C. Pedersen of New York recently emphasized, prevents timely treatment of many cases, why not wait with a stricture in the esophagus so long as the patient can swallow liquids?

By the way, does it not seem to you that some of the good results accomplished, when the energetic and enthusiastic therapist turns from local treatment to vaccination, are due to the rest given to the urethra while the hide is being belabored? I am sure that still better results will be obtained if the advice just now coming from London to combine vaccination with a bland diet, plenty of fluids and an absolute rest in bed is strictly followed.

My conclusions are:

When a physician is confronted by any case of disease, and more especially before rushing into any one's urethra with iron

and fiery solutions to tear and to burn, he ought to remember the golden rule, and ask himself what he would wish were done for him if he were in the patient's place. Economic conditions are such that it is asking too much that the physician should consider also the question: Would he, if inflicted by a like ailment, seek the advice and help at the hands of a man of his own experience? It would be a great progress, however, if everybody, and if I say everybody I admit of no exceptions, would at all times remember that to do for any pathological condition little or even nothing is by far better than to do actual harm.

Whoever has witnessed the rage and despair of the victims, whoever has given the subject proper consideration, and scanned his own past experiences, must come to the conclusion that mild and painless treatment may cure, and invariably gives good results, while the energetic, merciless handling of the urethra invariably does damage only.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY

URETHRAL AND PÉRI-URETHRAL COMPLICATIONS OF GONORRHEA AND THEIR SEQUELÆ*

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NATURALLY the time allotted in a symposium must necessarily be brief, and in the customary ten minutes a subject upon any branch of which a whole evening might well be spent with profit must suffer in some, if not all, of its phases. Therefore if it appear that certain conditions obtaining in this subject are treated superficially or entirely overlooked it will be deliberately and because of the fact that they would seem to be relatively more patent from a standpoint of etiology, pathology and treatment. Certain pathological factors of con-

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siderable interest, because of the difficulty of their diagnosis and treatment, but which might be considered natural sequences rather than complications, will be taken up in greater detail.

Of the earlier complications the most prevalent probably are phimosis accompanied by balanitis or balano-posthitis, resulting either from congenital or acquired causes, carelessness, the improper regulation of the discharge, chancroidal, or other erosions from abrasions of a succulent mucous membrane, in the presence of a redundant prepuce, or contracted preputial orifice.

Frequent subpreputial irrigations in stenosis are as a rule satisfactory, but not infrequently where the condition is complicated by the presence of chancroidal erosion a dorsal section is necessary. This is conducted either by means of the Taylor's scissors or the use of the galvano-cautery knife, the latter with a view of preventing additional infection. Taylor advocated two incisions, his object being to obtain a better exposure. In the majority of cases, however, a simple dorsal section proves amply sufficient and in the subsequent operation a better cosmetic effect is more easily obtained. It is a fact, however, that a persistent œdema is more marked where the latter incision is employed, and in the former, after the acute condition has subsided, the œdema of the flaps may be very quickly reduced by the strapping.

Where as the result of the retraction of an inflamed or contracted prepuce behind the glans, and in anticipation of the pain occasioned or for some other reason, the patient fails to bring it forward, a constriction ensues impairing return circulation and attended by a tortuous swelling of an œdematous nature from serous effusion which, if sufficiently prolonged, terminates in sloughing, and we have the condition called para-phimosis.

Immediate reduction of the prepuce or complete division of the constricting bands satisfactorily relieves the patient from this unpleasant predicament; generally, however, as Taylor states, when art is withheld nature intervenes, and the constricting ring is attacked by ulceration or gangrene, in which event a longitudinal fissure forms along the dorsum in the mucous layer of the prepuce and a corresponding one in the cutaneous layer. This is followed by an ulcer seated transversely in the

axis of the penis and attended by immediate relief to the patient. Much œdema and engorgement may persist.

Vegetations or papillary new growths formed by hypertrophy of the papillæ increase in the epidermis and capillaries, and hyperplasia of connective tissue may be noted in conjunction with gonorrhea, but in the vast majority of instances they are of a non-venereal nature and the term, venereal warts, naturally is a misnomer and should not be employed.

Inflammation of the Preputial Follicles.—During the course of an acute gonorrhea or following such an attack, we sometimes see running in the long axis of the penis, between the two layers of the prepuce, a little line of inflammatory tissue, the end of which is usually on the free border of the prepuce or just within its mucous layer. Careful inspection will usually show that this line ends in a minute opening the size of a pin's head. It may sometimes, however, not be visible to the naked eye. Pressure on this little blind canal usually causes a small drop of greenish or grayish pus to exude from it. This may be said to be the first form of gonorrheal preputial folliculitis. In the second form there is in all probability an intensification of the first, and here we find a little cherry-stone size nodule or abscess cavity situated between the two layers of the prepuce, having a well-marked outlet duct. During the exacerbations of these chronic sinuses and abscess cavities there is danger of auto-infection of the urethra. And these may at times be a source of infection to women.

There is still a third form of preputial abscess. During an attack of gonorrhea a small red spot is seen on either side of the frenum. This little red nodulous spot becomes enlarged and elevated, of the size of a pea or larger, and at its apex a minute opening is soon seen. An abscess of this kind may burst and seemingly heal up, or after the pus has been discharged and the inflammation has subsided it may be again infected by the urethral discharge and again be the seat of abscess. This process may be repeated several times. In some cases, after the evacuation of the pus, usually by pressure or perhaps by a slight incision, the morbid process ceases and the part again becomes healthy. In other cases, however, the abscess is very persistent

and rebellious to treatment. In some cases the nodule grows larger and deeper and perforation of the urethra may occur.

Persons having a long, tight or straight prepuce, or one with a small orifice, suffer most from the chronicity and oftentimes recurrence of these little lesions. Then, again, persons who for many reasons suffer from balanitis, or who are frequently the victims of gonorrhea, are peculiarly liable to these abscesses. It is not uncommon for one of these abscesses to become active and for its pus to infect the urethra of its bearer without any infection in coitus.

Suppuration of follicles of the cutaneous investment of the penis are simply mentioned as occasional complications of gonorrhea.

Juxta-Urethral Sinuses.—Occasionally in the presence of a persistent discharge, which may come from one or both lips of the meatus, one may observe the affected part to be distinctly red, or it may even be normal in tint. It sometimes happens that a distinct opening may be seen of about the size of a pin hole; this opening, however, may be hidden in the uneven papillary surface of the meatus, and the use of a magnifying glass is required to make it clearly visible. These sinuses are usually seated on one or both lips of the meatus at about a sixth or a third of an inch from its inner margin. There may be one or two such sinuses on either side, entirely distinct from one another. These morbid canals usually run backward parallel with the urethra, or in some cases obliquely backward and inward, opening in the fossa navicularis, forming meato-navicular fistulæ. These lesions may exist for years, giving rise to slight discharges and causing no uneasiness of mind and body; as a rule they remain indolent for an indefinite time, but are liable to periods of exacerbation, in which they become minute but conspicuous abscesses. Their treatment is thorough extirpation as soon as possible or curettage and topical application of silver nitrate or some stimulating preparation. In cases complicated by the presence of balanitis or phimosis, circumcision removes the source of irritation and a cure sometimes results.

Peri-Urethral Abscess.—These abscesses may be found upon the penis near the frenum and along the course of the organ as

far back as the peno-scrotal angle. They are generally round and globular, but their shape is determined by the topographical arrangement of the tissues forming its fossæ; perhaps in the majority of cases these abscesses occur unilaterally and are tolerably well circumscribed. When of goodly size, however, the inflammatory œdema which accompanies the suppurative process may involve the tissues on the other side. In any of these cases the patient experiences more or less pain at the site involved. In somewhat rarer instances there is constitutional disturbance, as shown by chills, fever, etc. The pressure of the tumor upon the urethra may affect the force and shape of the stream of urine or occasion dysuria, amounting even to retention. As soon as fluctuation is elicited these abscesses should be opened at the earliest possible moment, as if allowed to open spontaneously the urinary fistula may result.

Abscesses of the Follicle of the Urethra.—During the acute and declining stage of gonorrhea abscesses may result, beginning as inflammatory foci in the glands of Littre or the lacunes of Morgagni.

Two dangers are to be looked for in this condition. One is urethral fistula; the other is the formation, after the abscess bursts into the urethra, of an inflammatory nodule, the latter being always a menace to the patient, and which may remain months or years; but as a rule with every recurrence of gonorrhea the suppurative process lights up again and a new abscess is formed.

Abscess of Cowper's Glands.—These glands, located between the two layers of the triangular ligament, are not infrequently the result of an acute or declining gonorrhœa, the seat of abscess formation. They occur usually during the third or fourth week of the urethritis or later. Usually but one gland is affected, quite exceptionally both are involved. The peculiarity of these abscesses is that they are seated on either side of the raphe or median line. In their early stages these phlegmons are felt as little cherry-size round or oval swellings, just at the triangular ligament. With the increase in the phlegmonous process the pain becomes severe and in many cases give rise to constitutional symptoms, and local symptoms, such as dysuria and even

retention, may result. While at first the swelling is seated on one side of the raphe, when it becomes very extensive it encroaches on the opposite side and when very large the whole perineum becomes red and swollen. In most cases Cowperitis is an acute process; in some, however, it takes place quite slowly. The abscess may be walled off, and then when opened may be healed from the bottom, or the sinus leading into the urethra may remain patulous, in which case there is left a perineal or a scrotal fistula. In the majority of cases the urethral lesions, which consist of the duct of the gland in a state of inflammation, heals, and no bad results are left. In exceptional cases, however, a fistula may ensue. In the treatment immediate incision is indicated as soon as the abscess formation is determined. This should be done by deepening the incision until the pus begins to escape and then enlarging and breaking down by the gloved finger the remainder of the cavity. In this manner one avoids cutting the urethra. This incision may be conducted with or without a staff as a urethral guide.

Intra-Urethral Lesions.—For the proper interpretation of the lesions about to be described a considerable amount of skill with the various urethrosopes is a necessary requisite, and in this connection it is my personal opinion that the proper conduct of urethroscopic procedures from a standpoint of diagnosis and treatment constitutes one of the most difficult branches in the domain of surgery.

These instruments should properly be regarded as instruments of reserve rather than routine or display, and which in no instance should be employed without a previous study of the case. They do, however, constitute a very important adjunct in the diagnosis and treatment of conditions which, in their absence, may at times prove otherwise obscure and difficult.

For the proper understanding of these pathological conditions one should naturally be familiar with the normal urethra as seen through the endoscope.

Thickness and consistence is essentially variable according to the individual; the mucous membrane is thin and fragile in individuals whose organs are small or more or less atrophied; the contrary obtaining in vigorous subjects.

Coloration.—Is subject to wide variation, from a grayish red to a blood red, according to the intensity of the vascularization. Also varies according to the calibre of the tube and the degree of pressure exercised, as well as by the effect of certain drugs, such as cocaine.

Aspect of the Central Figure.—This varies in different portions of the canal; at the level of the glans it has the form of a little oval slit, in the penile region it assumes the shape of a dot, while at the bulbar region it has the form of a vertical slit. The mucous surface presents longitudinal folds in the form of the spokes of a wheel. These folds are more or less marked, according to the size of the tube, and while well marked in the healthy urethra undergo many modifications in the pathological. The healthy urethral mucosa also presents longitudinal striæ of a bright reddish hue, sharply defined against the mucosa, which is of a slightly yellowish pink.

Finally, the surface of the urethra in the normal state is smooth and brilliant in its entire extent, whereas it becomes irregular and dull in the pathological state.

In the normal state the orifices of the small lacunes of Morgagni are hardly visible; they appear as little spots or needle holes, slightly gaping and situated on the superior wall of the urethra. Likewise, the glands of Littre are almost entirely invisible in the healthy urethra. These two kinds of orifices are scarcely perceivable in the normal urethra. The large lacunes of Morgagni, examined in the parietal position, are perfectly recognizable, owing to the fact that they form a "V," the point of which is turned down and whose branches define the walls of the pocket.

The glands of Cowper open on the mucosa of the urethra by orifices which are not always visible, inasmuch as they are frequently concealed by folds of mucous membrane. At their level the fold of the mucosa often assumes the aspect of a V, whose point faces the isthmus and its opening corresponds to the external orifice.

In the prepuce of urethroscopic examinations of the anterior urethra I employ the straight Chetwood tube with a special lens attachment of such size as to permit of intra-urethral op-

erative procedure, the lens possessing sufficient prismatic properties so as to afford ample room for the introduction of instruments and at the same time afford a clear-cut magnified picture. While for the posterior treatments I employ the curved tube of Swinburne or Luys with the lens above mentioned, or the aspirating cystoscope of Luys. For diagnostic purposes the Buerger urethroscope affords a good view of this portion of the canal.

As seen through the posterior endoscope, after a profound introduction, one first observes the vesical neck, which appears under the aspect of radiating folds departing from a central point. Anterior to this the floor of the deep urethra appears as a series of longitudinal well-marked folds, converging upward. Still further anterior the *veru montanum* appears, under the aspect of a swelling in the form of a shuttle, elongated at both ends. On the median line one sees a vertical slit, which is the prostatic sinus, while on its lateral aspects are to be seen the orifices of the ejaculatory ducts. And in the same picture one at times observes one or more orifices of the prostatic ducts.

Endoscopy of the Pathological Urethra.—The condition frequently encountered in its earliest stage by means of such examination is the soft infiltration, soft stricture so called. This is characterized macroscopically by a turgescence of the mucosa and histologically by a sub-mucous infiltration of small embryonal cells, accompanied by a vascular dilatation. Through the endoscope its appearance is characteristic of a mass of hemorrhoids, of a cyanotic red, the surface of which is unusually brilliant.

This condition will not be gone into further, inasmuch as it would properly form the subject of another paper. It may be said, however, that by means of such examination this lesion may be diagnosticated long before any information may be elicited by means of the bougie à boule. A case I have at present under my care well demonstrates this fact; No. 30 French sound passing without the slightest resistance or any unusual pain shows upon urethroscopic examination a well-marked soft infiltration.

Hard Infiltration.—A true stricture—this also belongs to

another paper, but aside from diagnosticating this by means of the endoscope, this instrument may serve the useful purpose in the passage of a filiform, where such passage is otherwise at times exceedingly difficult. This applies particularly in the presence of an eccentrically placed opening in the stricture. The posterior urethra is also profoundly modified in hard infiltration, the membranous urethra assumes a reddish gray, its normal brilliancy being replaced by a dull appearance. The epithelium is easily desquamated and erosions are seen here and there throughout its entire extent. The mucous folds so numerous in the normal state at the level of the membranous region disappear almost completely as the result of fibrous infiltration. The orifices of the prostatic utricle and the ejaculatory ducts are at times constricted or closed by the same process and they are then difficult of recognition; while the vera montanum under the same infiltration becomes hard, of a yellowish color and assumes a dry aspect.

Lesions of the Lacunes of Morgagni and the Glands of Littre—The glandular form, where the orifices of the glands of Littre are enlarged and surrounded by inflammatory zone. The orifice assumes a crateriform aspect and often presents a liquid secretion; not infrequently in pressing lightly with the extremity of the tube the lips are made to gape and then one sees a liquid at times clear, at times purulent, emerging from this orifice.

The lacunes of Morgagni present similar modifications; the borders of their orifices have likewise a crateriform appearance and one may see a mucous or purulent secretion. If, on the contrary, the peri-lacunar inflammation is strongly developed, then the excretory ducts of the lacunes appear above the level of the mucous membrane and present the form of little red protuberances in the visual field. In cases where much dilatation has been conducted it is not rare to see the orifices of the lacunes or glands enlarged and augmented, ruptured at times, with laceration of the walls.

In the dry or follicular form the excretory ducts of the glands are closed and the lacunes themselves are obliterated in such manner as to form at times sub-epithelial cysts, which are filled

with colloid mass. These cystic conditions may by infection also become purulent.

Owing to the great number of glands one should not think of treating them separately; they should be attacked en masse.

The lacunes of Morgagni, as a result of the obliteration of their ducts, may undergo engorgement and thickening of their contents. The urethroscopic aspect is then quite characteristic; here the orifices of the glands have almost completely disappeared. And here and there one sees little grayish or yellowish depressions, which indicate a closed follicle presenting themselves as little nodules of the size of a millet seed. These are the follicles which are perfectly sensible on palpation of the urethra over a straight sound.

Papillomata.—Are not infrequently found in connection with soft infiltration; at times small and isolated, at others long, thin and fragile, and still others appear short and thick entering the lumen of the urethroscopic tube. In a case which I have recently demonstrated to two members of this society, where the patient had undergone treatment over a period of three years for gonorrheal urethritis at the hands of a number of physicians, both here and abroad, a urethroscopic examination by means of the anterior endoscope of Luys and the Buerger cystourethroscope easily demonstrated a well-marked branching papilloma, approximately $\frac{2}{3}$ of an inch in length with a narrow point of attachment, a relatively broad body, and fimbriated extremities. Grünfield reports a number of cases of papillomatous involvement of the entire urethra.

Polypoid outgrowths, either sessile or pedunculated, are also occasionally seen, as well as conglomerate polypoid granulations.

In the deep urethra the degree of inflammation of the verumontanum, the appearance of pus exuding from the ducts, various forms of granular degeneration and other pathological changes may only be determined by means of such examination.

Treatment.—Time is not afforded here for the detailed consideration of the treatment of these lesions; it is sufficient to state, however, that certain pathological conditions elicited as the result of endoscopic examination may only be treated locally,

while others are cared for in a general way, such as dilatation, etc.

I do not wish to be considered in any sense as a radical exponent of operative interference or precipitate instrumentation for intra-urethral conditions. It is, however, my firm conviction that many pathological factors resulting from or enhanced by the destructive action of the gonococcus are treated empirically over a protracted period of time, whereas a carefully conducted endoscopic examination will render at once apparent the exact nature and location of the lesion, and which after all must necessarily be the fundamental basis of intelligent treatment.

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A PERINEAL BELT FOR RETENTION OF DRESSINGS IN SITU

By G. SHEARMAN PETERKIN, M.D., Seattle, Wash.

DIFFICULTY is often experienced in the use of a bandage which will properly retain perineal or anal dressings.

The patient's perineum may be skilfully bandaged by his medical attendant, but in post-operative treatment, when he must apply or readjust his own dressings, there is very often considerable trouble experienced. The patient is either obliged to leave on the bandage about the waist, which in all probability has become rolled, frayed or soiled, or he attempts to apply a new waist bandage and very quickly finds out how difficult such a simple procedure may become. In addition to these objections to the roller bandage about the waist, the perineal portion of the bandage, not having a firm waist attachment, is very apt to slip and allow the dressing to become disarranged, and if tight enough to hold, will not give—with all the attendant discomforts to the patient.

It has been found by actual experience, as a perineal bandage, that the Sanitary Belt or Ferris Belt (Style No. 435) used by women answers all the requirements of simplicity, hygiene and personal comfort. It can be snugly fitted to the waist, easily

reapplied, offers a most convenient attachment for the perineal bandage, a 3-inch gauze or twisted bandage which the patient can readily carry in his pocket, thus permitting him to change, whenever soiled, without waste of time; it can be conveniently laundered and is, withal, very comfortable.

For those not familiar with the Sanitary Belt photographs are appended. The belts cost 25 cents, run from 22-inch waist measure to 36, and can be purchased at almost any department store by calling for Ferris Sanitary Belt, Style 435, in size desired.



EDITORIAL

THE ETIOLOGY OF LARGE POLYCYSTIC KIDNEY

This pathologic condition is found about equally in both sexes and at all ages, from intrauterine life to extreme old age, so that neither age nor sex can be considered as of any etiological importance.

The study of the causes giving rise to this condition must of necessity be divided into three subdivisions, viz.: (1) That of heredity, (2) that of change of structure, either from the congenital conditions, such as inclusion or arrested development, and (3), certain acquired conditions, as, for example, interstitial nephritis. Bovée is inclined to attribute to these three subdivisions an importance in the order in which they are grouped and he therefore considers heredity as the most important element in the etiology of the large polycystic kidney. The contention that heredity is very evidently concerned in the production of polycystic kidney is upheld by the teachings of Virchow, Sanger, Beck and Lund. It was found in two sisters by Beck, in a man whose mother also suffered from the same affection by Lund; Virchow met with a family in which four out of six children were subjects of it, while Sanger has stated that he has seen a family in which the first, fourth, seventh, tenth and thirteenth children possessed polycystic kidney.

On the other hand polycystic kidney is usually bilateral, and out of 26 cases studied by Dickinson he found but one kidney which was free from it. Lejars found the affection bilateral in 62 cases, while Ritchie noted that the affection was unilateral in but 2 of 88 cases studied at autopsy.

It is also to be noted that various deformities or abnormalities are not infrequent complications of large polycystic kidney. Lejars found cysts of the liver in 17 of the 62 cases tabulated by him, and in Ritchie's table there were 21 out of the 82 cases. The latter writer also found the uterus, thyroid gland and ovary cystic, and cystic spleen has also been recorded as a complica-

tion. Henry Morris refers to the coexistence of talipes, cleft palate, imperforate anus and absence of the anus, rectum, urethra and external genitals. He also refers to absence of the ureter and bladder. Malformations of the aortic valve and of the interventricular septum have been noted by Newman.

The three facts that the affection is bilateral, that it appears to be a family affection and that so many other evidences of interrupted development are commonly present, would seem to again demonstrate Noble's theory of hypoplasia from degeneration.

In the light of the data we now possess from recent embryological researches, the details of developmental interruptions would seem quite plain. The various theories that have been offered as to the origin of large polycystic kidney cannot be ignored or considered completely disproven. Of these there are four principal ones, namely, (1) persistent germinal rudiments, that is, fetal inclusions; (2) the obstruction theory, which upholds that the development of the cyst is a sequel to renal sclerosis which constricts the tubules or obliterates the papillæ; (3) that there is a colloid or fatty change and that the cysts are the centres of these changes; (4) the neoplastic theory.

Now, if the first theory was sufficient to include all cases, the congenital influence would at once be admitted without reserve, but, with the proof of cirrhosis as a factor, much difficulty arises in accepting the inflammatory process as always occurring before birth, and for this reason Bovee is inclined to believe that a very large percentage of the cases is due to the first named theory. He points out that Kölliker and others have demonstrated beyond a doubt that the Wolffian body forms the ureter and calyces and the metanephric blastema the urine-forming portion of the renal gland and that a failure of fusion of these two structures occurs, the occurrence of which may be readily accepted in the light of developmental anomalies so frequently met with in other organs and structures of the body. And what is still more, such congenital defects frequently coexist with the bilateral polycystic kidney; and still, at the same time, one may understand how this renal anomaly may infrequently be unilateral.

CHARLES GREENE CUMSTON.

Review of Current Urologic Literature

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

VOL. XXVIII., I, No. 12 (JUNE 2, 1910)

1. Vesico-vaginal Fistulæ Involving the Ureter. By Rochet and Müller, Lyons.
2. Some Considerations on Non-gonococcic Urethritis. By B. Motz.
3. The Technique of Meatotomy. By J. DeSard.
4. The Indications for the Various Methods of Operation in Prostatic Hypertrophy. By Dr. Bensa, Nice.
5. A Case of Traumatic Stricture followed by Rapid Post-operative Recurrence. By M. Palazzoli.

1. VESICO-VAGINAL FISTULÆ INVOLVING THE URETER.—Rochet and Müller point out that the vaginal route is manifestly inconvenient in the treatment of certain vesico vaginal fistulas, particularly when these fistulæ are situated in the immediate neighborhood of the termination of the ureters. In practice it is very difficult to be sure of the exact relations of the fistula to the ureter. In cases in which the ureter is involved the abdominal route presents the method of choice. This was illustrated in a case reported by the authors in which there was a vesico vaginal fistula of 11 years' standing. Two months after the appearance of the fistula a vaginal operation was performed. Later three other operations, also vaginal, were performed, but without much benefit. The patient continued to pass most of her urine per vaginam and could not retain any in the bladder. It was found on examination that the fistula was in the cul-de-sac, but it could not be exposed to vision. An abdominal operation was performed with the patient in the Trendelenberg position. The bladder was opened and 2 fistulous orifices were found. Of these one was close to the left ureteral orifice, the other, much smaller, was situated 2 cm. above the first, also close to the ureteral mouth. A catheter was introduced into the ureter and the mucous membrane of the bladder was incised along the canal. The edges of the mucosa thus dissected exposed the ureter, which was freed from the fistula. The latter was then closed. The same process was used for the second fistula.

2. NON-GONOCOCCAL URETHRITIS.—Motz presents a general review of this subject. He admits, with several writers, the existence of

urethritis which is not due to any microbe, in other words, an aseptic urethritis. But in all the cases reported there was some doubt that the condition was really aseptic, in view of the fact that the normal urethra contained pathogenic microbes. Normally the urethral mucosa possesses a considerable degree of immunity against microbic infection, and something else than the mere presence of microbes is needed to excite the urethritis under these conditions. Every true urethritis is probably of microbic origin. Motz classes the cases of simple urethritis into the following divisions:

(a) Urethritis of traumatic origin, as, for example, one due to a rupture of the urethra, the presence of a stone or foreign body, or the passage of instruments. (b) Chemical urethritis, as, for example, that following the injection of certain irritant solutions; due to the presence of certain abnormal changes in the urine or the presence of urinary toxins. (c) Urethritis following infections of the kidney or the bladder. (d) Spontaneous urethritis in which the process appears insidiously without apparent cause. In these cases there is a possible chance of remote venereal infection. Finally, (e) there are the cases of simple urethritis of venereal origin. These are much more common than the other classes mentioned. There are two types of these cases, the primary and the secondary. In the primary cases the origin is often obscure, but direct infection may be traced in many instances. Many of the cases are very acute at the start, but others less severe. The secondary cases are those following the gonorrheal infection. These cases are the most frequent of all. Here the irritation of the mucous membrane produced by the gonorrheal toxins opens the way for a secondary infection which may be due either to microbes existing normally in the urethra or to germs introduced during the treatment.

As regards the treatment of the simple cases of urethritis, the first point to be attended to is the removal of the cause, as for example, a foreign body, or a vesical infection, etc. In the primary venereal cases the treatment in the early stage should consist of external disinfection and the injection of a small quantity of silver nitrate solution, 1 per cent. in strength. If the case is more advanced, an anterior irrigation may be used, which should be followed by the injection of the silver nitrate solution. If the posterior urethra is involved, irrigations should be continued, including the bladder. Instillations of silver nitrate into the posterior urethra should also be employed. In cases of secondary infection it is best to allow the treatment to rest for a week and then to resume it in the form of irrigations, injections or instillations of silver nitrate, copper sulphate, protargol, etc.

3. THE TECHNIQUE OF MEATOTOMY.—De Sard condemns the use of the meatotome which has been so long used in enlarging the meatus. The disadvantages of this instrument lie in the fact that it is impossible to graduate exactly the limits of the incision. If the blades be opened suddenly the incision may be too large, and if the opening is made cautiously the incision may be too small and may have to be repeated. It is also difficult to incise exactly in the middle line so that the incision will turn out unsightly. In fact, the lateral incision is almost always the cause of subsequent hemorrhage due to the severing of a small artery on the corresponding side. The galvano-cautery which has been recommended is possessed of the same disadvantages, although it is somewhat more delicate.

Albarran advises the passing of a metal sound or a rubber catheter into the canal and then the incision of the glans at its lower border over this sound by means of a scalpel. The disadvantage of this is that the sound is a cylindrical body and when the meatus is very narrow it must necessarily be very small in calibre. The present author recommends the following method: He uses a forceps about the size of an ordinary artery clamp. One of the blades is provided with a groove like a grooved director, the other blade has a slit corresponding to the groove. The glans is disinfected and anesthetized by applying to it for a few minutes a pledget of cotton soaked in a 1 per cent. solution of cocaine. The solid blade bearing the groove is then introduced into the canal and so placed that its outside lies perfectly in the center at such a position that the length of the incision is indicated by the length of the slit into which the tissues on the lower side of the organ project. The clamp is then closed and the knife is carried through the tissues down to the groove in the solid blade of the forceps. There is no way in which the knife can slip or in which the incision can be made too large or irregular. The wound is dressed by introducing a small bit of gauze between its edges. This gauze remains in place for 2 or 3 days without any discomfort to the patient.

4. INDICATIONS FOR OPERATIVE PROCEDURES IN PROSTATIC HYPERTROPHY.—Bensa presents an interesting summary of this question, based upon the principle that the operation selected must depend upon the condition of the patient and the character of the growth. He concludes that total supra-pubic prostatectomy should be the method of choice in cases with prominent lateral lobes in young patients who are but slightly infected. This operation should be performed in two stages in patients with marked infection. It should be made partial in cases in which there is a pediculated middle lobe.

Perineal prostatectomy is to be preferred in cases with marked infection on account of the facilities for drainage. It is also of value in cases with the hypertrophy extending downward.

The Bottini operation is suitable for cases with soft lateral lobes, which are difficult to enucleate; for cases for median bars and stenosis of the neck of the bladder; for cases in which the patient refuses other operation, and finally for those in which the condition is so bad that another operation cannot be borne. Suprapubic cystotomy should be used in connection with deep cauterization of the prominent lobe or median bar, in cases with much bleeding, and in old people with marked infection.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

VOL. XXVIII, II, No. 13 (JULY, 1910)

1. The Venous Circulation of the Kidneys. By E. Papin and Jungano.
2. Crossed Ectopic Kidney. By E. Papin and Palazzoli.

1. THE VENOUS CIRCULATION OF THE KIDNEY.—Papin and Jungano continue their researches on the venous circulation of the kidney which they began in 1908. The present article is illustrated by a number of reproductions which were made in the course of their studies. They devote themselves particularly to the question of the anastomosis of the renal veins. There are four possible divisions of these anastomoses, which exist but rarely in a complete form in every specimen: The anastomoses at the level of the calices or sinuses; those at the base of the pyramids; those under the capsule, and the perirenal anastomoses. All these anastomoses unite at various levels, connecting the system of one pyramid with that of the neighboring pyramid. The development at the various levels may be unequal. Usually, when the subcapsular system is well developed, the others are less so, etc. The anastomotic system which surrounds the calices in man is but slightly developed or absent in lower animals.

2. CROSSED ECTOPIC KIDNEY.—Papin and Palazzoli have collected ten cases of this very rare anomaly. The two kidneys in these cases were situated on the same side of the abdominal cavity, but they were not united, as is the case in horseshoe kidney. Of the latter anomaly the authors collected 70 cases.

The cases of crossed ectopic kidney were more frequently found upon the right side, eight out of ten cases being on that side. The normal kidney was usually in its regular place, while the crossed kidney was found beneath it or somewhat towards the inner aspect. In some

instances the two kidneys were in contact with each other by their opposite poles, and a case has been reported in which there was a bridge of connective tissue between them. The normal kidney was almost always regular in shape, although at times small in size. The crossed kidney, on the other hand, was almost always abnormal, not only in shape (discoid, flattened from before, backward or trilobed), but also in regard to the situation of the hilus; occasionally the hilus was internal, but in most cases it was directed either forward or backward. The ureters of the upper kidney in some cases ran along the outer border of the lower kidney, towards the corresponding side of the bladder. In other cases the ureter of the normal kidney passed behind the lower kidney. There was nothing regular about the course of crossed ureter save that it was implanted into the opposite side of the bladder. The upper kidney in all the cases was supplied with arteries originating from the aorta. In five cases the artery was single; in three cases double. The arteries of the lower kidney were derived from the aorta, from the great iliac, or from the bifurcation of the aorta. A history of the 10 cases collected by the authors and their complete biography are appended to the article.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

VOL. XXVIII, II, No. 14 (JULY, 1910)

1. Urinary Disturbances in Survivors of the Sicilian Earthquake. By C. Bruni, Naples.
2. A New Cysto-urethroscope. By Leo Buerger, New York.
3. Elimination of Silk Sutures through the Bladder after Hysterectomy. Removal of Sutures through Cystoscope. By Dr. Le Für.
4. Forcippresure Methodically Applied in Nephrectomy. By S. D'Este, Pavia.

1. URINARY DISTURBANCES RESULTING FROM VIOLENT EMOTION.
—Bruni observed certain urinary disturbances in persons who had survived the earthquake of 1905 in Calabria. After the eruption of Vesuvius in 1906 he noted another series of cases in which fright alone was the active cause. Finally, a still larger number of cases occurred during the recent catastrophe in Sicily as well as in Calabria. In the present article he offers the results of his observation as to the effects of fright on the urinary organs. Some of the cases reported were his own, while others were related to him by several observers who also had been on the spot.

It is well known that fright may produce serious morbid conditions. Thus during the French Revolution the scenes which accompanied the Reign of Terror resulted in serious affections of the heart and in other diseased conditions. Baglivi, in his celebrated work on the Practice of Medicine, describes the effect of an earthquake in Rome in 1703. Nobody was killed, but several persons died of fright, many women had miscarriages and many sick people grew worse from the shock. Ultzmann treated of the effect of fright upon the urinary function, but the subject has received very little attention, even in modern literature. The cases which have been reported hitherto may be classified as follows: Transient urinary disturbances following earthquake; nocturnal incontinence in children; spontaneous hematuria in adults, and finally cases of acute retention or incontinence which lasts for weeks or months, but finally disappears, and which occur in persons without any previous urinary affections. The transient disturbances observed in survivors of earthquakes are of slight importance. The same may be said of the nocturnal incontinence of children, in whom this condition increased in frequency after the earthquake. There were several cases in which hematuria occurred without any traumatism and without any lesions in the urinary tract. The bleeding can only be attributed in these cases to fright and its vascular changes. The blood diminishes in coagulability as the result of a great emotion, and Hunter reported a case of a man who died in an access of anger in whom he found this change in the blood.

In two cases there was incontinence of urine in women who presented the signs of hysteria, doubtless from the fright occasioned by the earthquake. In one case the incontinence continued for some time. In two hysterical women there were very marked pains in the bladder, which resisted all treatment and which occurred as the result of fright due to the earthquake.

There were 30 cases of complete acute retention in which there was nothing especially interesting except their frequency after the earthquake and the inability of the attending surgeons to secure a sufficient number of catheters to relieve these patients. Some of the acute cases of retention became chronic later, although there were no lesions in the urinary tract to explain this chronicity. In patients with enlarged prostate it is interesting to note that retention occurred as the result of fright. In these cases previous attacks of retention had been noticed. As yet we possess but little information regarding the true causes of these urinary disturbances and their connection with emotion.

4. FORCIPRESSURE METHODICALLY APPLIED IN NEPHRECTOMY.—D'Este presents a study of forcipressure, as suggested by Tansini in 1893, for nephrectomy. The method has three advantages. It permits of a rapid isolation of the organ, allows a complete, immediate and certain arrest of hemorrhage, and avoids in septic cases both the immediate and the late complication which may arise from the tying of a ligature in an infected region. The method of forcipressure, therefore, merits adoption as a routine method in the performance of nephrectomy. In a recent report Tansini stated that he had had but a single death from nephrectomy among 47 cases operated upon since 1875. He believes that his good results were due in a larger measure to the method of operation than to the care given to examining the functions of the kidneys. Tansini advises clamping the hilus, including the great vessels and the ureter, especially in cases in which there is a sclerosis of the vessels and in which the isolation of the pedicle is very difficult. The operation can be completed much more rapidly after the clamp has been applied. Tansini claims to have shortened the time of the operation to about half an hour, even in difficult cases.

The article, in part, replies to Pousson, who in 1906 declared that forcipressure is a method which must be used as rarely as possible, and is to be considered as a last resort. This view is not shared by other authors who have recently written upon nephrectomy.

THE TREATMENT OF GONORRHEAL EPIDIDYMITIS. C. Bruck (*Medizinische Klinik*, May 22, 1910) in a clinical lecture upon this subject, delivered at the University of Breslau, considers every phase of the treatment of epididymitis, including the use of vaccines, etc. He rightly remarks that epididymitis is one of the most serious complications of gonorrheal infection. It occurs with considerable frequency, although authors vary in their estimates regarding the percentage of cases in which the epididymitis is present. Neisser's figure of 16% seems to be most accurate. As regards the side affected, the old idea that epididymitis was more frequent on the left side, for anatomical reasons, has long since been exploded. In a statistical study of 3400 cases, the left side was affected in about 46%, the right in 47%, while both sides were involved in 7% (Neisser).

The occurrence of epididymitis is usually coincident with posterior urethritis, and, therefore, falls usually into the third or fourth week after infection. Yet the epididymis may be involved without the posterior urethra being affected, as has been conclusively shown, both clinically and experimentally, by Schindler.

The seat of the lesions in acute epididymitis is usually at first, in the tail of the organ, whence they gradually spread to the head. The inflammatory lesions may lead to abscess formations.

As regards the treatment of epididymitis, there are three methods which have been in use of late, but which have not yet become generally established among practitioners. These methods are *puncture*, the use of *vaccines*, and the use of Bier's *hyperæmia*. Puncture of the epididymis is an old method which has never become very popular, but lately has been revived by a number of surgeons, led by Baermann and Schindler. Baermann advocates early puncture even in the presence of extremely acute symptoms. This measure is very painful at the time, but gives great relief, because it relieves tension and allows the fever to disappear quickly. The circulation of the parts is furthermore improved through the emptying of whatever exudate may be present in the hydrocele. Schindler does not make as deep punctures as Boermann, but introduces his trocar for a distance of about 4 c.m., puncturing from the tail upward, or wherever the presence of abscesses may be felt. He uses rather smaller canulæ, such as those used for the injection of soluble mercury preparations. In his opinion, puncture is so simple and causes so little pain that it can be used by any physician in private practice without any local anesthesia. No bad effects follow this measure, and the symptoms are rapidly relieved. Schindler recommends that every case of epididymitis which is accompanied by fever should be treated by a puncture. A single puncture is usually sufficient. The object of the puncture is not so much to secure drainage of pus, but rather to relieve the tension of the organ. The present author confirms the results which were obtained by Schindler with puncture in acute cases of epididymitis. He used puncture very early in fresh, acute cases. The injury to the parts which is necessarily made by the puncture is quite insignificant, when we consider that the epididymitis itself, if allowed to go on, will cause far greater injury. In order to meet any possible objection against such injury, the author reserves puncture for cases in which there are palpable abscesses.

In other cases, in which the question is how to secure a relief of the tension in the tunica, Bruck has adopted, at Neisser's suggestion, a simple incision into the tunica propria without entering into the epididymis itself. This method avoids the dangers of a possible atresia of the canals, due to an injury of the organ. With a very fine, sharp bistoury the scrotal skin is punctured by means of a small incision about 1 c.m. in length, and then the tunica over the tail of the epididymis is incised, also to the extent of about 1 c.m. The pain is not any

greater than during puncture, or cocaine anesthesia may be easily employed. The effect of this method is just as prompt as in puncture, with the additional advantage that the epididymis is spared. The little wound is painted with iodine, and is dressed with a bit of gauze and some zinc plaster. This method is similar to that known as epididymotomy, recommended by Dind and Metraux, in 1908, and is much less extensive than that recommended some time ago by Bazet, who incises the entire tail with a wide incision, sutures the wall of the epididymis to the scrotal skin, and packs with antiseptic gauze. Surely, if any method can produce atresia of the duct, this operative procedure certainly will do so. To sum up, therefore, incision of the tunica should be used only in very recent acute cases, and never in sub-acute or chronic epididymitis.

The method of *Bier's hyperemia* is also not new, as those who have used strapping with plaster will remember. The technique of Koenig may be used: An attendant, or the patient himself, seizes the affected organ with one hand and pulls it upward, while with the other hand the opposite organ is pulled downward. The affected organ is then surrounded by a layer of cotton around the cord, then a strip of gauze over the cotton, and, finally, a piece of rubber tubing, the ends of which are clamped with an artery clamp, in such a way as to exercise a moderate degree of compression. The rubber tube is allowed to remain for about twenty-four hours, is then removed, and the parts are elevated upon a support, in order to facilitate the disappearance of the edema which had developed. This edema disappears within from five to twenty hours, when the application of the rubber tube may be removed. The tube should never cause any pain—in fact, the pain already present should be relieved by this method. The subjective sensations of the patient should be the chief guide to the amount of pressure employed. If this method is carefully carried out the pain disappears rapidly, the infiltrates diminish in size. Later, active hyperemia may be used, such as hot air and hot applications, in order to absorb the remaining infiltrations. According to Schindler, hyperemia does not act as promptly as does puncture, a finding which is confirmed by the present author. The latter found the method to fail in many cases, and does not see very much advantage in it.

The *vaccine treatment of epididymitis* is really the only specific method of combating this complication. We do not know just how the vaccine acts. Possibly it gives rise to the formation of antibodies which are antagonistic to the gonococcus, or, what is more probable, the vaccine acts like tuberculin by promoting an absorption of the lesions

by a specific reaction in the tissues. Whichever way this action takes place, there is no question that the vaccine treatment gives excellent results in two complications of gonorrhea—epididymitis and arthritis. The present author used the vaccine treatment in about 50 cases of gonorrheal epididymitis and is very well satisfied with the results. The vaccine not only relieves pain after the first exacerbation which follows an injection, but also rapidly secures the absorption of the infiltrates and leaves but very slight nodules. Bruck does not mean to say that all other methods should be abandoned in favor of vaccine, yet he thinks that the vaccine treatment is a distinct advance. The cases suitable for this treatment should be early acute cases. It is not to be expected that vaccine will do any good in old cases with extensive infiltrates and scar-tissue formation. The author has never observed any bad effects in the vaccine treatment, but he points out that this method is contraindicated in patients with fever. In these cases the fever must first be relieved by other methods, and the vaccine may then be employed in a day or two.

The method of using vaccine should consist of administering increasing doses, producing rises of temperature lasting about a day, and constituting a reaction after each injection. If there is a reaction after a dose we should wait for three or four days and should then repeat the dose. If a slighter reaction occurs we should wait for three or four days and give a larger dose. If after an injection no rise of temperature occurs a larger dose may be given in two days. In this manner we can give increasing doses of the vaccine. In no case did the author find it necessary to give more than five or six injections.

The *treatment of epididymitis in Neisser's clinic* was next outlined by Bruck. When an acute case with fever and severe pain is admitted, the first thing that is done is an incision into the tunica over the tail of the organ, together with the removal of any hydrocele fluid. A wet dressing is then applied with a well-fitting suspensory. In this way it is not necessary that the patient remain absolutely motionless in bed. A well-fitting suspensory is better than the elevation of the parts in bed over a support. The wet dressing used is moistened with 50 per cent. alcohol to which 2 per cent. of resorcin has been added. The scrotum is surrounded with gauze saturated with this solution, then with a layer of oiled silk and finally with the suspensory. This treatment alone is sufficient in many cases to diminish the swelling and to lower the temperature. When this has been done the vaccine treatment is begun, although the wet dressings are continued.

In acute cases, without fever, no puncture is performed and the vaccine treatment is begun at once, at the same time as the wet dress-

ing. If, under this treatment, one or more nodules remain, or if the case be a subacute or chronic one, hot applications are first tried. If these fail, then strapping with plaster is used. The plaster should be applied sufficiently tight to cause hyperæmia, yet in no case should it be made tight enough to cause pain.

In all cases with remaining indurations injections of thiosinamin or fibrolysin are used very frequently, the injections being given daily or every other day, the dose being from 1 to 2 c.c. of a 10% solution. Thus far no bad effects have been noted by this treatment, but a remarkable improvement even of very chronic cases has been secured.

In Neisser's clinic ice is not used in any case of epididymitis because it seems to favor hard infiltrations. Rest in bed is naturally enforced during the first few days, but the treatment may also be employed to walking patients, provided the patient is willing to come three times a day to have his temperature measured, and provided he is ready to go to bed if severe reactions occur. During the treatment the diet and bowels are carefully regulated and narcotics are administered, such as belladonna suppositories, when necessary. Furthermore, during the treatment, Neisser's school does not see any contraindication against continuing the treatment of the urethra, save in very acute and febrile cases, when the treatment is omitted for a day or two. As soon as possible thereafter anterior and posterior injections are employed cautiously, using not too large soft rubber catheters which are introduced up to, but not beyond, the sphincter of the bladder. During acute epididymitis irrigations are not used, but instillations with the Guyon syringe are frequently employed and have never caused an infection of the second epididymitis. As soon as the acute symptoms are relieved the full treatment of the urethra is resumed, although massage of the prostate is avoided, even if there is prostatitis, as this massage tends to spread the infection to the opposite side. If acute prostatitis occurs, heat is applied either by means of hot poultices to the perineum or by means of the hot rectal douche.

Finally, an interesting suggestion of Schindler's is mentioned: This author recommends the use of atropine in all cases of acute posterior urethritis, with the idea that this drug prevents the anti-peristaltic, retrograde movements of the seminal system, thus preventing the spread of infection from the prostate and posterior urethra. The present author, therefore, gives in an acute posterior urethritis 3 milligrams of atropine daily, and smaller doses from $\frac{3}{4}$ to 1 milligram daily when epididymitis has already developed. While even these measures are not certain to prevent epididymitis, yet they are worth trying, owing to the gravity of this complication.

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THE EHRLICH-HATA PREPARATION FOR SYPHILIS

(DIOXY-DIAMIDO-ARSENO-BENZOL HYDROCHLORIDE)

A SYNTHETIC REVIEW

THE great advances in our knowledge of protozoan diseases, among which syphilis now figures definitely since the discovery of its spirocheta, have been the inspiration for extensive studies in the therapy of these affections by Paul Ehrlich and his assistants. The character of the protozoa responsible for such diseases as trypanosome-infection, relapsing fever, syphilis, etc., is such that serum or bacterial therapy cannot be hoped to conquer them. Ehrlich's aim has been to find some chemical agent which would destroy the parasites in the body of the patient *after a single injection*, without being seriously toxic for the human organism. This principle of chemotherapy is known as "*therapia sterilisans magna*" and is theoretically based upon Ehrlich's conception of immunity.

Arsenic compounds apparently offered the greatest prospect of success in this field. The question was to find the least toxic and the most efficient combination. For this purpose Ehrlich and his assistants experimented successively with a long series of these compounds. The fact that arsenic has been used in the treatment of syphilis, of malaria, etc., particularly as a tonic and alterative very early in the history of these diseases, is too well known to need comment. Large doses of arsenic have also been

used in tertiary syphilis, and the lesions were favorably affected with this treatment, although recurrences were very frequent. O. Rosenthal was one of the advocates of this method. In France an arsenic compound known as *hectine* (sodium benzo-sulphon-paramino phenylarsinate) has been used of late in the treatment of syphilis.

Mode of Action of "606."—It is well to bear in mind at the outset of this discussion the essential difference, theoretical and clinical, between the action of the new Ehrlich remedy and that of the arsenic compounds previously used in syphilis. The latter were administered in small repeated doses, presumably until the body was fairly under the influence of arsenic. The use of arsenical compounds in syphilis was analogous to the use of mercury and iodides. The clinical results obtained with these older arsenic compounds were at times good, sometimes disappointing, and quite frequently very injurious. In the course of his experiments Ehrlich tried a large number of organic arsenic compounds, as for example arsacetin (acetic derivative of atoxyl), arsenophenyl-glycin ("No. 418"), etc., and finally a compound prepared by Bertheim—dioxy-diamino-arseno-benzol. As this was the 606th compound tried, the short name "606" was temporarily adopted for the new remedy. Ehrlich's associate Hata having been the first to experiment with the new substance on animals (see below) the name "Ehrlich-Hata's" remedy was quite generally adopted in German publications.

Ehrlich arrived at the discovery of "606" by a purely theoretical train of reasoning, based upon his brilliant researches upon the relation of chemical constitution of therapeutic agents to their action upon the organism. The new compound is not a germicide,—at least it does not kill the *spirocheta pallida* in the test tube. It does destroy the *spirochetæ*, however, in the body fluids and tissues, and therefore it probably causes the development in the body of a substance which kills the *spirochetæ*. That "606" does not act merely in virtue of its arsenic molecule seems certain from the two cases on record in which injections were given to syphilitic mothers, and cured their syphilitic nursing infants, although no arsenic was found in the milk of these mothers. The theory is that "606" generates in

the body substances which disintegrate the spirochetæ and destroy them with great rapidity, a single injection being sufficient to "sterilize" the organism. Much evidence has been adduced in favor of this theory, yet there have been doubts cast upon it by conflicting experimental results. Time will tell the true status of this attractive theory.

The most important point of difference between the older method of slow saturation with a presumably feeble toxic arsenic compound, e.g. the cacodylate of sodium, and the new "therapia sterilisans" is the fact that the older remedies gradually rendered the spirochetæ resistant to arsenic, i.e. made them "arsenfast," so that the succeeding generations of spirochetæ were also of the arsenfast type. This was proved by the fact that patients who had been treated with other arsenic compounds did not respond clinically to the beneficial action of the new compound, "606."

The first Experiments with the New Remedy.—The theoretical basis of the new treatment having been worked out by Ehrlich, and the new compound having been prepared by Berthelm, it remained for Ehrlich's associate Hata to make the first experiments in animals to show the action of "606" on the spirochetæ. Hata injected "606" into rabbits and found that within from 24 to 48 hours after a single injection all spirochetes disappeared from large primary sores on the scrotal skin of these rabbits, and that these ulcers healed quickly thereafter. Doses of 0.15 gram per kilo were injected into monkeys without toxic results. It was found, furthermore, that the Wassermann reaction disappeared promptly in animals after the injection of "606."

On the basis of these animal experiments, Ehrlich requested Professor Alt, of Uchtspringe, to test the remedy in paralytics, and later asked Professor Schreiber of Magdeburg to test it in human syphilis. The first announcement of the results obtained was made by Ehrlich's assistant, Hata, at the Congress of Internal Medicine in Wiesbaden in April, 1910. (*Therapie der Gegenwart*, 1910, No. 5, p. 226.) At that early date it could be said only that the remedy had a markedly specific action in syphilis; that it greatly surpassed mercury in efficiency,

and that it was apparently harmless in man, in proper dosage. In March, 1910, Wechselmann, director of the dermatologic clinic of the Rudolf Virchow Hospital in Berlin, began an extensive study of the new remedy. Wechselmann reported his findings on June 22, 1910 before the Berlin Medical Society (*Therapie der Gegenwart*, July, 1910, p. 316). Hesitating to use the new arsenic preparation save in apparently incurable cases of syphilis, Wechselmann first employed it in newly born babies with syphilitic pemphigus. In these cases the entire body of the child is apparently permeated by spirochetæ and the outcome is almost always fatal. Wechselmann obtained strikingly successful results with "606" and saved the lives of a number of apparently doomed infants.

Present Status of "606."—Since then a large number of reports on the results obtained with "606" have appeared in Germany, Austria and Russia. Ehrlich has at the present writing (October, 1910) records of probably over eight thousand cases of syphilis treated with his new remedy (Meltzer). The results have been so striking, in some instances marvelous, that the entire medical world has been aroused and is hailing "606" as an epoch-making discovery in therapeutics. The daily press of every civilized country has given columns to the discussion of the new treatment, investing the new remedy, after the fashion of journalism, with wonderful properties even more striking than those actually observed. Physicians from every part of the globe have made a pilgrimage to Ehrlich's laboratory during the summer and a number have secured supplies of "606" for trial in their clinical work. In this country the first report of cases of syphilis treated with "606" was made by Dr. M. S. Kakels of New York (*Medical Record*, Oct. 1, 1910), which was followed a week later by an article by Drs. Nichols and Fordyce (*Journal of the A. M. A.*), giving a complete account of their experience with the new compound.

Ehrlich, very properly, has steadily refused to allow "606" to be used in private practice, and has been careful to whom he entrusted supplies of the new drug for experimental use. He prefers to give it to men with facilities for clinical and laboratory research, who could be relied upon to make trust-

worthy observations, controlled by laboratory tests. The remedy is patented by Ehrlich, but he has assigned all his future profits in it to the Speyer Institute in Frankfort, where the remedy originated. Ehrlich is constantly working to improve the new remedy, and at the time of writing has announced that he has prepared an improved modification of it, "hyperideal," which is in many respects superior to the original "606." (The remedy is to be placed on the market in this country in the near future, and may be obtained then through Victor Koechl & Co., New York.)

Chemistry.—The full chemical name of "606" is dioxy-diamidoarsenobenzol dihydrochlorid. Its formula is $C_{12}H_{12}O_2N_2AS_2HCl$. It occurs as a sulphur yellow powder and is put up in sterile sealed tubes, as it is affected by exposure to the air. It is very slightly soluble in water, and its solutions are not stable, so that they must be prepared extemporaneously for each injection.

Dosage.—The "dosis tolerata" of "606" for any animal is 0.1 per kilogram, i.e. a dose of 5 grams for a man weighing 100 pounds. This is a theoretical maximum tolerated dose. The actual curative dose for human beings is from 0.3 to 0.5 grams, the lower amount being assumed to be the least quantity in an adult, a single injection of which will sterilize the organism and rid it of spirochetæ. Somewhat larger doses are usually employed, however, 0.4 and 0.5 are frequently given, while Neisser gives usually 0.6 and Glück, of Sarajevo, has used from 0.6 to 0.7, but has noted signs of intoxication. In women a smaller dose (0.3) is used by some observers. Others graduate the dosage according to the stage of syphilis, giving the larger doses in primary cases (Salomon, of Paris), smaller doses in malignant syphilis, in tertiary cases, and in neuropathic cases.

Technique of Injection.—There is still a vast difference of opinion as to the best method of injection and even as to the best manner of preparing solutions of "606." Some administer it untramuscularly, others under the skin, still others prefer the intravenous method. Some use acid, some neutral, some alkaline solutions; some employ suspensions in watery media, others in oily liquids.

Ehrlich's original method of preparing the solutions of "606" for injection was as follows. In a flask or test tube holding 50 c.c. the dose to be injected was diluted with a few drops of methyl alcohol. Then 10 c.c. of sterile water are added, and then from 2.5 to 10.00 of sterile decinormal caustic soda solution are added slowly till complete solution, with possibly a faint residue. To this from 20 to 30 c.c. of distilled water are added. An anesthetic may also be added to this solution, which must be made in sterile glassware. The making of the solution takes from one half to one hour, and the solution must be injected as soon as made.

A new formula for the preparation of the solution has been recently given by Ehrlich (marked "606"—XXIII: mix 0.5 gm. of "606" with 0.5 to 1.0 c.c. of methyl alcohol, and add from 5 to 8 c.c. of decinormal soda solution. Then dilute with 25 to 30 c.c. of water. This gives a perfectly clear, yellow solution.

Intramuscular Injections.—These are given into the gluteal muscles, usually half of the solution on either side, on account of the bulk of the liquid. These injections are exceedingly painful, though the addition of anesthetics to the solutions, and the modified methods of preparing the solutions (see below) have rendered the pain less marked.

Shooting and lancinating pains follow the injections within from one hour to several hours, last 3 or 4 days and gradually subside. They are usually localized in the coccyx. Often the patient is unable to move his thigh, to stand, or to walk for a week. A rise of temperature sometimes occurs on the second or third day.

Intramuscular injections also cause a marked edema and extensive infiltrations which are very painful and last eight days or longer. The patients are unable to sit down. Abscess formation is rare, and the infiltrates yield usually to rest and hot applications.

Lange found that it was much better to use a perfectly neutral solution, as neutralization abolished most of the pain following the injection of "606." The required dose of the powder is dissolved by rubbing in a mortar with 1 or 2 c.c. of the

commercial solution of caustic soda. Glacial acetic acid is added drop by drop until a fine yellow, slimy sediment appears. The latter is mixed with from 1 to 2 c.c. of sterile distilled water. To this solution is added either decinormal soda solution or one percent acetic acid till the mixture is exactly neutral to litmus paper.

Wechselmann still further improved this method by centrifuging the sediment of the emulsion and diluting with physiologic salt solution. This makes the injection itself painless, but later slight pains appear, together with some swelling or redness. Occasionally a hard infiltration appears.

Michaelis adopted a similar method, using phenolphthalein as an indicator: Into a mortar or flask holding 50 c.c., 16 c.c. of very hot sterile water are poured. In this water 0.30 to 0.60 gm. of "606" are dissolved. A few drops of an alcoholic $\frac{1}{2}$ -percent. solution of phenolphthalein are added as an indicator. Then a few drops of normal acetic acid are added, until complete decolorization. A fine yellowish suspension then results. A few drops of soda solution are added, till a very faint pink tinge is produced. The injection is made into the muscles of the buttock, by means of a large needle, and is practically painless. The patient is asked to stand up and move his thigh a few times after the injection is made.

He is then told to stay in bed for two or three days. Some patients complain of pain during the 24 hours following the injection.

At the present writing, while most authors employ the neutral suspension, according to Wechselmann's formula, Alt still uses the alkaline solution, while Kromeyer employs a suspension of the acid salt in liquid paraffin, like those used for insoluble mercury preparations.

Junkermann, of Dortmund, found that injections with Wechselmann's solution were not so efficient clinically, and after trying it for some time, he returned to the solution in place of the suspension. He therefore is using now the method of Alt, with the difference that instead of normal sodium solution he employs the strong official 15% sodium solution to precipitate the salt and secure its further solution. The following is Junk-

ermann's technique: All necessary utensils, the distilled water, and the 15% sodium solution are sterilized. Six c.c. of water are poured into a separator funnel containing from twenty to thirty glass beads. The dose of "606" is then added and the mixture shaken thoroughly. The clear solution of the acid salt is thus obtained in a few minutes. Next, the sodium solution is added drop by drop until the precipitate of the insoluble base disappears and a clear solution results. The solution is collected into a sterile receptacle and two c.c. of sterile water are added to wash the bands, so that no traces of the remedy are lost. No methyl alcohol is used, which is an advantage, owing to the possible toxic effects of this solvent which have been noted in some cases. Junkermann found this solution very efficient. So far as the painfulness of the injections was concerned, there was much difference in the individual patients. He recommends injecting at about the level of a line connecting the anterior-superior spines. The sciatic nerve should be avoided. The needle should be plunged slowly into the glutei, as far away from the sciatic nerve as possible and should never be directed towards the median line, but should be entered as nearly as possible in the sagittal direction. Many patients do not complain of any pain to speak of, but a few require a dose of morphine soon after the injection.

Subcutaneous Injections.—These are advocated by Wechselmann and are made near the spinal column, below the angle of the scapula. This method has not found many advocates thus far. A number of authors, on the other hand, have employed

Intravenous Injections. For this purpose 250 c.c. of artificial serum, or normal salt solution, are added to the solution of the remedy as injected intramuscularly. The entire quantity is then injected in the ordinary way into a vein in the fold of the elbow. The intravenous injections are, of course, painless; the dose injected into the veins is certainly absorbed and the whole of it utilized therapeutically, while with intramuscular injections some of the arsenic naturally remains in the muscular tissues unabsorbed for some time. (See below.) For this reason intravenous injections are favored by some authors, for example, Neisser, Iversen, Schreiber and Hoppe. The reactive ef-

fects of intravenous injections of "606" must be noted, however. There is, in the first place, the rise of pressure in the blood circulation incident to the introduction of 250 c.c. of fluid. The injections are followed, according to Iversen, by a chill occurring two or three hours after the infusion. Then follows a rise of temperature, joint pains, and sometimes vomiting and diarrhea. The dose used by Iversen intravenously was from 0.3 to 0.4 gram; in some cases a second injection of the same quantity was given four weeks later.

To sum up a consideration of the methods of injections, it may be said that so far the intramuscular method numbers the most adherents. The intravenous method is rapid and is of great advantage in relapsing fever, where there are spirochetæ in the blood. In syphilis, however, according to Treupel, the intramuscular method, with its less rapid but more active influence upon the spirochetæ in tissues, is of great value.

Elimination of "606."—The great advantage of the new remedy is that when it is injected intramuscularly arsenic is but very slowly eliminated. While with the use of atoxyl and arsenophenyl glycine the arsenic is eliminated within three to five days, Alt has found arsenic in the urine ten days and longer after the injections of "606." Fischer and Hoppe found traces of arsenic on the twelfth day after an intramuscular injection of 0.3 gram of "606." Intravenous injections cause a very much more rapid elimination, the arsenic disappearing from the urine on the fourth day.

In contrast to atoxyl and arsacetine, "606" is eliminated also through the intestine. Traces of arsenic have been found in the feces as long as eight days after the dose.

Intramuscular injections of "606" are followed by a formation of deposits in the tissues from which the arsenic is slowly absorbed. In a woman who died from other causes fourteen days after the injection, and in another woman who died thirty-six days after injection, arsenic deposits were found in the gluteal muscles.

Reactive Phenomena after Injection of "606."—Working with a remedy of such power as "606," one naturally is inclined to be cautious and to watch carefully for any untoward

symptoms that may result from its use. From the mass of evidence at hand to date, the new compound seems to be certainly less toxic than any other arsenic preparation hitherto tried, but this statement must be taken with reservations, until further data furnished by time and experience are at hand.

The immediate effects of the injections have already been mentioned in connection with the technique. Fever, from 38 to 40° C., which may last from one to three or five days (Treupel, Schreiber and Hoppe) is often noted after the injections. Neisser explains this fever by the fact that great numbers of spirochetæ are destroyed, and a large quantity of toxic substances are liberated. Injections of the remedy in non-syphilitics does not produce fever.

Violent headaches, nausea, vomiting (the vomited matter does not contain arsenic), great excitement, a distressing thirst, not due to the fever (Spatz), marked chills, an occasionally sweating and temporary drowsiness (Glück) have also been noted in some cases. Spatz has also noticed in one patient cardiac disturbances with rapid and irregular pulse. In a few patients skin eruptions have been noticed some hours after injections. Thus Spatz observed a generalized urticaria, which disappeared in two hours. Glück noticed a localized urticarial rash in five patients, and a scarlet-fever-like erythema was observed in others. The skin lesions at times become brighter red (Herxheimer's reaction) soon after an injection. This is possibly due to an insufficient dose of "606" having been used.

A leucocytosis follows the injections and may reach a high point, for example 38,000. The general condition of the patient improves rapidly during the treatment. While during the first days after the injection there is some loss of weight, the patient rapidly gains weight during the following week. The new remedy, therefore, has no debilitating effect, and is not contraindicated in tuberculous subjects. On the contrary, in some tuberculous subjects there was marked improvement of the pulmonary condition.

Toxic Effects.—Unlike mercury, "606" has thus far not been found to give rise to any serious toxic effects upon the gastrointestinal tract, or the kidneys. It is important, of course, to

make sure of the action of the new compound upon the optic nerve, in view of the very serious effects of atoxyl and other arsenical compounds. Ehrlich makes it a point always to examine the fundus of the eye before administering the remedy. The new compound does not seem to have any toxic effect upon the normal retina. In one case reported by Wechselmann the ophthalmoscopic examination was omitted and it was only after the injection that the patient was found to have had an optic neuritis for several months. There was no untoward effect, but on the contrary, the condition improved greatly within a month.

Ehrlich has been very careful to define the *contraindications to the use of "606."* He considers patients who have organic diseases other than syphilis as unsuitable subjects. Non-specific diseases of the eye, heart, nervous system, kidneys and cases of aneurysm are considered contraindications to its use. In the parasyphilitic affections of the heart, arteries and nervous system, it should be used only in the earliest stages.

Deaths reported after Injections of "606."— It is very difficult to prove that the deaths which occurred in a few cases treated with the new remedy, among so many thousands of patients who have received the injections, were due to the treatment itself. One fatal case reported by Iversen was probably due to alcoholic poisoning, and it is questionable whether the arsenic had anything to do with it. The patient was an alcoholic and hysterical woman, who had been treated with mercury fifteen years previously. Fourteen hours after an injection of 0.3 gram of "606" the usual reaction occurred, and the spirochetæ which were present in great numbers disappeared. Four days later there was fever, a scarlatina-like rash, and a bilateral broncho-pneumonia. Later there appeared symptoms of acute nephritis, and edemas and subcutaneous hemorrhages. The patient died eight days after the injection. At autopsy there was found a marked arteriosclerosis, a myocarditis, and a fatty liver.

Another fatal case occurred within twelve hours after the injection, in the practice of Spiethoff. It is said that Ehrlich attributed this death to the shock produced by the pain of the

injection. The patient was very cachectic, and had a specific stricture of the esophagus, with a hyperplasia of the heart and aorta. No signs of arsenic poisoning were found post-mortem.

In a case reported by Fraenkel and Grouven, the following post-mortem report was obtained: Diffuse encephalitis, cerebral softening of the left temporal and part of the parietal lobe, internal hydrocephalus, anemia and edema of the brain, chronic lepto-meningitis of the vertex, hypermia and edema of the lungs, atrophy and fatty degeneration of the heart, splenic and hepatic hyperemia. In this case the intravenous method was used, but it seems improbable that either the method of injection or the drug itself was responsible for the death of a patient with such lesions. In two other cases in which death occurred shortly after the injections the patients were moribund from syphilitic lesions. Fraenkel and Grouven, for the present, declare that they will not use the Ehrlich remedy intravenously any longer, and believe that most physicians will agree with them.

Another fatal case occurred in the work of Hoffman after the injection of 0.3 gram in acid solution. This author also reports, after an injection of the same dose, the occurrence of a central embolic pneumonia, with threatening cardiac collapse, and in two other cases less marked cardiac disturbances.

Bonhöffer reported two cases in which untoward symptoms occurred after injections of "606." The first patient had been suffering from spinal syphilis for ten months, but his bladder function had been restored perfectly by previous treatment. The only symptom remaining before injection was a paresis of the legs. Three days after the injection the bladder was completely paralyzed and the paralytic symptoms in the legs became worse. In a second case two hours after injection there was high fever, and a severe epileptic attack occurred with left hemianopsia as a residual condition.

In three cases reported by Wechseltmann there were paralyzes of the peroneal muscles, which may be due to direct damage to the sciatic nerve.

The injections of "606" were ordinarily well borne by pregnant women, but Loeb and Glück each reported the occurrence of abortion after an injection.

The most sensational incident in connection with the toxic effects of the treatment under discussion was the report of two physicians in Prague. The cases were discussed in the daily press and stirred up a great deal of excitement. These two investigators, Bohac and Sobotke, claim to have observed serious sequelæ following the injections. In one case there was anuria, which lasted over twelve hours, in another an anuria continuing for nine days, and was followed by oliguria and difficult urination for a considerable time. In two cases albumin was found in the urine, without casts. There was also a loss of the patellar reflexes, and of certain other reflexes usually tested. In two cases there was severe intestinal tenesmus, and in three cases obstinate constipation. The authors compare the symptoms to those obtained with atoxyl poisoning. Ehrlich took direct issue with the authors, pointed out the fact that very many injections had been given with no untoward symptoms, and maintained that the disturbances noted by the Bohemian physicians were due to the methyl alcohol which had been used in preparing the solution. Since this incident has occurred, many observers have omitted methyl alcohol from the solution. At any rate, as W. Fischer points out in a recent interview, (*Therapie der Gegenwart*, September, 1910), there seems to be some danger of an occasional injurious effect of Ehrlich's remedy upon the central nervous system. This is a very important matter, because syphilis, as we know, owes its reputation as a dangerous disease principally to its effects upon the central nervous system.

Effect upon the Wassermann Reaction.—This is naturally a question which has been considered by every observer. In supplying investigators with the new remedy for experimental use, Ehrlich very properly insists upon having every patient undergo a Wassermann test before the treatment, and having the progress of the case controlled by repeated sero-diagnostic tests. In one of the first reports upon "606" made by Alt, who tested it in paralytics, the disappearance of the Wassermann reaction was the basis of a conclusion that the new remedy was a powerful and anti-syphilitic. Yet, since then, further observations have not shown that Ehrlich's remedy was of any definite therapeutic value in the treatment of tabes and syphilitic paraly-

sis (Fischer). The significance of the disappearance of the Wassermann reaction, according to Fischer, and a number of other observers, cannot be regarded as a definite criterion of successful treatment. A negative Wassermann reaction does not by any means prove that the patient is cured and that recurrences are not to be feared. It is entirely irrational to regard a negative reaction even when the test continues to be negative during the primary period, and a non-appearance of the rash after an injection in the primary stage, as evidences of a permanent cure. We know that the reaction disappears early when mercury is employed during the primary stage, and yet there is no question there of a complete cure. While the first reports seem to indicate that the majority of patients showed a negative reaction within a certain time after the injection of "606," later investigations have made it very doubtful as to whether this negative reaction means a permanent destruction of the syphilitic virus (Fischer, loc. cit).

Therapeutic Effects of Ehrlich's Remedy.—Even in the few months which have elapsed since the introduction of the new compound, the clinical results which have been obtained furnish conclusive evidence of its great therapeutic efficiency in syphilis. Theoretically "606" is ideal as a remedy for syphilis. A single injection, at most two injections, the remedy gives rise to a disappearance of the spirochetæ, to a rapid fading or healing of syphilitic manifestations,—primary, secondary, or tertiary. Often a striking improvement takes place in a few days; often lesions are completely healed in a fortnight. Ulcers heal with unusual rapidity. Moreover, the patient gains in weight and improves in general condition after the "reaction" due to the injection has passed.

The literature of "606" is already so extensive that a mere summary of the experiences of the numerous writers would take up too much space. The following is given as a statement of the clinical results obtained by a number of trustworthy observers. When time-periods are mentioned, it is not meant to convey the impression that the results are invariably obtained in the time given, but that a number of workers have obtained such results.

Primary lesions have healed within two or three days after an injection of "606." The secondary rash has disappeared in three days. Muculo-papular syphilides have vanished in from 3 to 5 days. Indurated glands became softened and rapidly disappeared. Ulcers were covered with crusts and epidermized in from two to four days. Large ulcerating gummas cicatrized within 21 to 47 days. Pustulous eruptions healed in from five to nine days; condylomas of the scrotum and the penis healed in from one to five days (Neisser).

In a case of laryngitis with ulcers upon the vocal cords the voice cleared up in five days.

The remedy has been found effective in syphilis of the internal organs, in "malignant syphilis" which had resisted mercury and iodides.

On the whole the results obtained with "606" in *hered-syphilis* in infants have not been very brilliant. Wechsellmann, as we said above, cured two infants with syphilitic pemphigus. Another case of this kind was reported by Michaelis. In three other cases reported by Wechsellmann the infants died within a few days after the injections, although the syphilitic signs disappeared. Wechsellmann remarks that the infants could not bear the enormous amounts of endotoxines liberated by the destruction of so many spirochetæ in their bodies.

In *paralytics* the clinical results have thus far not been very encouraging, although the Wassermann reaction disappears. Cases of tabes, general paresis, etc., have not been influenced favorably. No success was apparently obtained in *interstitial keratitis*. The impression is from these facts that "606" acts favorably when it is necessary to destroy spirochetæ, but cannot aid when permanent sclerotic lesions have developed.

Indications for the Use of "606."—It is of course too early to formulate indications for a remedy so new as "606." We may quote here from a critical review by Blaschko: "Ehrlich himself does not recommend its use in every case of syphilis. Indications for it are given as follows: (a) Malignant cases which have not reacted to mercury; (b) all forms of syphilis in individuals who show an idiosyncrasy for mercury; (c) cases in which recurrences occur immediately after mercurial treat-

ment; (*d*) cases in which relapsing lesions occur during a mercurial treatment; (*e*) primary lesions before the appearance of secondaries; (*f*) constitutional syphilis not previously treated in the primary or secondary stage; (*g*) in late recurring secondary lesions it should be used in combination with mercury and iodides; (*h*) in the so-called parasymphilitic affections of the cardio vascular and nervous system, it should be used only in the earliest stages.

Preliminary Examination before Treatment with "606."—The patient's heart, arteries, lungs and abdominal organs should be examined. He should have an ophthalmoscopic examination to exclude optic nerve involvement. The blood should be tested for the Wassermann reaction and the lesions, if present, should be examined for spirochetæ. The urine must be carefully examined. The patient must not have had recently any treatment with mercury or arsenic.

Recurrences of Syphilitic Lesions after Injections of "606."—Within the brief period which has elapsed since the new remedy has been tried in human syphilis one fact stands out prominently, namely, that *recurrences* of the lesions or the appearance of other lesions are not infrequent. Thus Fischer, from whose review we have already quoted, saw an extensive chancre, rich in spirochetæ, in a patient who had had an injection eight weeks before. Schreiber and Hoppe saw recurrences within four weeks in 10 out of 150 patients treated with "606." Kromayer in 5 out of 27 cases; Braendle and Clingenstein in 5 out of 27 cases, of which one was a severe recurrence, within about three weeks. Neisser out of 100 cases observed 5 with recurrences. Hoffmann saw a severe ulcerative lesion recur after a dose of 0.3 of the new remedy, followed by a course of inunctions.

These recurrences necessarily detract somewhat from the brilliant positive results recorded, yet they are mentioned as a warning that patients cannot yet be told that they are "cured" when their lesions disappear after an injection of "606."

Summary as to the Value of "606." It is scarcely possible at this early date to give a fair summary of the value of "606." It may be gleaned from the above account that Ehrlich has succeeded in finding a remedy which possesses "an extremely in-

tensive action upon many luetic processes." On the other hand, the recurrences of syphilitic lesions in many of the patients treated already furnish evidence that "606" is not a permanent cure for syphilis. It will, of course, take years of observation to determine the definite value of "606" in the prevention of recurrences and of involvement of the internal organs or the nervous system. If Ehrlich and his pupils continue to work along the path already laid out so successfully by them, the probabilities are that they will find the true and lasting cure for syphilis, perhaps in a modification of "606" or in a variation in its dosage or administration.

As yet we do not even know whether "606" will permanently displace mercury and the iodides. Thus far it seems probable that these old remedies will continue to be indispensable as heretofore in some of the forms of late syphilis, in which they now render good service. Time and work will solve the many problems opened by the discovery of "606," but to Ehrlich will ever belong the glory of having opened the door of a new, unexplored chamber in the recesses of the temple of Æsculapius.

Review of Current Urologic Literature

FOLIA UROLOGICA

VOL. V., No. 2

1. Perineal Prostatectomy. By M. Rafin.
2. Retro-peritoneal Infections. By H. Stromberg.
3. Contribution to Our Knowledge of Nephritis in Dogs. By Dr. Seibel.
4. The Use of Lubricants for Urethral Anesthesia, and in the Treatment of Urethritis. By W. Karo.

1. PERINEAL PROSTATECTOMY.—Rafin presents a study of the results of 75 perineal operations. The first group of cases included 12 new growths of the prostate, not diagnosed before operation. Among these there were 2 deaths, or a mortality of 16.6%. There were 2 cases of prostatic abscess, one of which terminated fatally. The cases of prostatic

hypertrophy, as such, numbered 59, with 6 deaths, or a mortality of 10.1%. There were no deaths among patients who had clear urine before the operation.

A summary of the accidents during the operation showed that perforation of the rectum (7 cases) and hemorrhage (1 case) were the two complications to be feared. As regards the accidents after the operation, hemorrhage, pulmonary complications, and orchitis were the three chiefly to be noted. Orchitis, particularly, was frequent, occurring in 20 cases.

As regards the final results, a fistula remained permanently in two cases. Of 14 cases operated upon for acute retention, 13 were able to empty the bladder completely, while one had 175 cc. of residual urine. Of 31 patients who survived the operation, 8 had no residual urine after the operation, 14 had from 5 to 50 cc. of residual urine; 4 from 50 to 100 cc.; 4 from 100 to 200 cc., and 1 had 250 cc.

2. RETRO-PERITONEAL INFECTIONS.—Stromberg examined the anatomy of the retro-peritoneal space, by means of the injection method. This space is divided by fascial planes into three separate layers: Paracolon, paranephron, and the retro-peritoneal cellular layer. These fascial sheaths constitute a protective mechanism, which limits temporarily the spread of suppurative inflammations, particularly paranephritis and paracolitis. The resistance of these sheaths is, however, temporary, and sooner or later the infection spreads beyond their limits. The importance of an early diagnosis of retro-peritoneal suppurations is self-evident, because surgical interference is much more successful, so long as the affection is localized. Clinically three forms of retro-peritoneal infections should be distinguished—paranephritis, paracolitis, and retro-peritonitis.

3. NEPHRITIS IN DOGS.—Seibel points out that nephritis is comparatively rare in our domestic animals. Dogs, however, are an exception, for in these animals infectious diseases may give rise to acute as well as chronic nephritis. In dogs two forms of chronic nephritis may be distinguished. In the first, there is an interstitial nephritis, while in the second form there is a degeneration of the parenchyma, almost always complicated by dropsy. A marked hypertrophy of the heart has always been observed in dogs in chronic nephritis. In one case out of ten changes in the retina were also made out.

4. LOCAL ANESTHESIA BY MEANS OF URETHRAL LUBRICANTS.—Karo criticizes an article by Barringer of New York, "A New Method of Urethral Anesthesia," which appeared in the March number of the same journal. In this article a lubricant containing alypin was recommended as useful in securing local anesthesia in the urethra, before the

introduction of cystoscope, etc. Karo claims that the method of introducing urethral anesthetics simultaneously with lubricants was originated by Guyon and Kraus, and perfected by Casper. The present author has also contributed to this subject. Karo claims that his method is superior to the older ones introduced by Casper, etc., and that the use of special collapsible tubes, provided with nozzles, like syringes, greatly facilitates the application of anesthetics and lubricants. In Karo's opinion novocaine is far superior to alypin. The addition of 1 per cent. of the former anesthetic to the lubricant known as "catheter-prin," the mixture enclosed in a collapsible tube such as has been mentioned, offers great advantages in the preparation of the patient for cystoscopy, etc. The technique described by Barringer is far more complicated than that of Karo. "Tuboblrenal," which is the name of the preparation recommended by Karo, may be conveniently combined with silver salts and other astringents, making an excellent preparation for the treatment of urethritis.

FOLIA UROLOGICA

VOL. V, No. 3, 1910

1. Three Cases of Various Lesions of the Kidney, Accompanied by Cyst Formation. By L. Dominici.
2. The Use of Anti-gonococcus Serum. By N. Leschnew.
3. Contribution to our Knowledge of Primary Perinephritic Abscess Due to Gonococcus Infection. By T. Miyata.

1. THREE CASES OF CYST FORMATION IN THE KIDNEY.—Dominici studies in detail three cases, selected from a series in which nephrectomy had been performed by Alessandri, of Rome. All three cases had this in common, that they showed cyst formation, but in other respects the kidneys presented a variety of lesions, including some uncommon forms. The first case was one of a true polycystic kidney; the second a sarcoma, diffused through the organ; the third showed a chronic nephritis. In the author's opinion the origin of the polycystic kidney may be attributed to a sclerotic process. In this case there was abundance of fibrous tissue found in the organ. In the other cases, however, sclerotic tissue was absent, thus contradicting those who believe that the fibrous tissue is secondary and is due to the irritation of the cysts. While the author has observed proliferations of epithelial structures in polycystic kidneys, these formations were not like those occurring in adenomata of other organs. In the polycystic kidney these proliferations are, in his opinion,

compensatory attempts at tissue regeneration. As to the fatty tissue so abundantly present in polycystic kidneys he believes that it develops from degenerated connective tissue, and that the size of the cysts is in proportion to the degree of fat formation.

In the other two cases the origin of the cysts was as follows: In the case of cystic sarcoma the cysts arose through the absorption of degeneration products. In the third case (chronic nephritis), the cysts were the results of obliteration of the tubules and the consequent accumulation of degenerated epithelium within these cavities.

2. THE USE OF ANTIGONOCOCCUS SERUM.—Leschnew reviews the history of antigonococcus serum, which was first prepared by Torrey, of New York. The only serum that is at present prepared for sale is that made in the biological laboratory of a well-known American firm. Leschnew treated sixteen cases with antigonococcus serum, after having injected 2 c.c. of the serum into himself as a precautionary trial. On the basis of the sixteen cases observed, he concludes as follows: The treatment does not shorten the acute manifestations, but the course of the disease is rendered somewhat less acute. The discharge diminishes after the second or third injection. The gonococci do not disappear from the discharge under the influence of the serum. The cause of this is not clear at present. Possibly the action of the serum upon the local process is too slight; possibly the dose and the number of injections must be increased in order to produce the proper effect upon the gonococcus. No complications occurred in any of the cases, but this may have been accidental. At any rate, the use of the serum seems desirable in acute urethritis, especially when the patient has shown other lesions of the urinary tract, previous to the gonorrheal infection. Although Rogers does not advocate the use of the serum in acute urethritis, the present author recommends it as a means of preventing complications.

Leschnew also used the serum in twenty-five cases of complicated gonorrheal infection, and found that in chronic urethritis the gonococci disappeared after from five to eight injections. In complications of gonorrhea, and in cases of general gonococcus invasion, such as arthritis, etc., good results can be obtained. The temperature is lowered, the pains disappear, the inflammatory process is cut short, and the general condition improves.

As regards the untoward effects of the serum, the author mentions the occasional occurrence of eruptions, such as erythema or urticaria, the occurrence of infiltrates at the site of injection, with a rise of temperature. In some cases the local reaction is quite intense. It is difficult to say just how the serum acts. The author's observations favor the theory

that the toxins are thrown into the fluids of the body, instead of being imprisoned in the leucocytes, as has been supposed. The question as to whether the serum contains immune bodies which cause the disintegration of the gonococci, so that the gonotoxin is liberated and thus plays an important part in the cure, is not settled, and will require further experimental and clinical investigations.

3. PRIMARY PERINEPHRITIC ABSCESS, DUE TO GONOCOCCUS INFECTION.—Miyata reminds us that gonococcus infection of the perinephritic tissues is very rare, and reports a case in which he found the gonococcus in such an abscess almost in pure culture. The patient was a man aged thirty-two, who had had a gonorrheal urethritis, in 1905. In February, 1909, he was suddenly seized with severe pains in the right hip and loin, and with marked chills and high fever. An exploratory puncture was made at the level of the lowest rib, and revealed the presence of pus containing gonococci. An exploratory incision showed the presence of a perinephritic abscess containing numerous gonococci. The patient made a good recovery. The case presents one other point of interest, namely, that the gonococcus was found in connective tissue, in spite of the fact that Neisser and several other authorities believe that the gonococcus cannot exist for any length of time in this form of structure.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

VOL. XXVIII, II, No. 15

1. The Treatment of Chronic Blennorrhagic Urethritis. By Michael Jungano. (To be continued).
2. Two Cases with Radiographs. By Dr. Desnos.

2. A CASE OF ECTOPIC KIDNEY, WITH A STONE IN THE PELVIS, SIMULATING A URETERAL STONE IN THE RADIOGRAPH; A CASE OF VESICAL TUMOR SIMULATING A STONE IN THE RADIOGRAPH.—Desnos presents descriptions of two cases, the character of which appears in his sub-titles. Radiography is of extreme value in the diagnosis of urinary affections, yet one of the most important features of this work is the thorough study of possible errors in diagnosis, directly due to deceptive radiographic images. It was with this object in view that the two cases were related.

In the first case the patient was a woman, sixty-five years of age, complaining of continuous pain in the abdomen, which was aggravated in an acute form from time to time. She had had a number of attacks of renal

colic and hematuria. On the left side the kidney seemed to be enlarged and somewhat displaced downward. The ureteral orifice on the left side was irregular, gaping and edematous. The ureteral catheter ascended to seven cm. and allowed the escape of purulent and bloody urine. A radiograph was taken and showed the presence of a stone, apparently in the lower part of the ureter. An abdominal incision was made, but to his astonishment the author found that the kidney was displaced downward into the iliac fossa, while the mass which had been felt in the lumbar region and the left side was the spleen. The kidney was isolated and its pelvis was found filled with a large stone. Owing to the fact that the pedicle was so short it was impossible to perform a nephrotomy, and a pyelotomy was done instead, removing the stone and leaving a drain after suturing the pelvis. The patient died about two weeks after the operation from pulmonary congestion, the wound having become infected in the meantime. Radiography in this case was deceptive, in that it indicated a stone in the lower part of the ureter. Possibly a second radiograph showing the mass in profile would have shown that the stone was situated in a plane more anterior than the normal ureter.

In the second case the patient was a man of fifty-six, who had been suffering from acute and quite abundant hematurias. At intervals he had had also attacks of renal colic, followed by the expulsion of gravel. The hematuria and the pain were aggravated by motion and jolting. The patient's prostate was somewhat enlarged. He refused to be examined with instruments through the urethra and in the bladder. The diagnosis lay between stone and tumor. Radiography showed apparently a large stone in the bladder. After some delay the patient finally decided to allow an operation to be performed. While under anesthesia the patient was cystoscoped, and instead of a stone, a large rounded tumor was found occupying the right half of the bladder. Upon incision the tumor was found to be of the size of a small orange, without any real pedicle, but it was possible to surround it at its base by means of a cautery loop, and thus to remove the greater part of it. Inasmuch as the wall of the bladder was the seat of much infiltration, involving the right ureter, the author resected all he could of the infiltrated tissue, and left the bladder open, everting its edges so as to be ready to leave a permanent fistula. Contrary to expectations, the patient did so well during the first month that the bladder was allowed to close. Soon afterwards, however, the hematuria and pain returned, and the bladder was opened again, with the purpose of securing permanent drainage. The process went on very rapidly and the patient died three months later, after a great deal of suffering.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

VOL. XXVIII, II, No. 17

1. Experimental Study on the Transmission of Tuberculosis from the Fallopian Tubes and the Rectum to the Bladder. By F. Cuturi.
2. Ionization in Affections of the Urinary Tract. By D. Courtade.
3. Inflammatory Strictures of the Prostatic Urethra. By G. Li Virghi.

1. EXPERIMENTAL STUDY OF TRANSMISSION OF TUBERCULOSIS TO THE BLADDER.—Cuturi reports the results of the following experiments:

In the first series of animals (rabbits) he studied the transmission of the tubercle bacillus from tuberculous Fallopian tubes to the bladder. The tubes are the most frequent seats of tuberculosis in the genital apparatus, because they present favorable conditions for the development of the germs. From the tubes the tuberculous process may spread into the uterus and the vagina. In order to cause congestion of the bladder in his experiments he injected a solution of cantharidine (1 : 1000), using 1 c.c. in each animal daily. The tubes were infected after exposing them through a laparotomy. After having thoroughly aseptized the skin, an incision was made, the tubes were isolated, and a culture of the tubercle bacillus of the bovine type was injected into the tube by means of a syringe provided with a long needle. The results of this first series of experiments were as follows:

The walls of the bladder at their points of contact with tuberculous Fallopian tubes may be penetrated by tubercle bacilli. At these points of contact the vesical wall presents a patch of tuberculous cystitis. These experimental facts find their equivalent in the human subject in certain types of tubercular cystitis secondary to tuberculosis of the uterus and tubes. The bladder may therefore become infected by contiguity, in addition to the other modes of invasion—the urethral, the renal, the hematogenous and the lymphatic.

In a second series of experiments the author attempted to find out the manner in which the bladder becomes infected following rectal tuberculosis. He repeated the experiments of Wreden, who obtained the passage of bacteria from the rectum to the bladder after having injured the rectum, either by means of hot water, or croton oil, or by curetting the rectal mucosa. The conclusions from this series of experiments were: A bladder which has been rendered receptive to the tubercle bacillus in an animal with a tuberculous rectum presents a marked invasion of the mucosa and a slight invasion of the muscular and serous coats of the

bladder with tuberculous lesions. When the rectum is tuberculous the infection of the bladder takes place, not by contiguity, but by the lymphatic route.

2. IONIZATION IN INFECTIONS OF THE URINARY TRACT.—Courtarde emphasizes the importance of ionization in modern treatment, with special reference to its value in the treatment of urinary organs. After a brief sketch of the theory of ionization and its effects upon tissues, he considers the application of these principles to treatment of genito-urinary affections.

Beginning with the kidney, the first condition considered is *renal neuralgia*. We must be sure that the pain is due to a neuralgic condition and not to an organic lesion. The treatment is especially effective in the renal neuralgia accompanying neurasthenia and hysteria. In renal neuralgia ionization of sodium salicylate is used. A large flat electrode is placed upon the region of the origin of the splanchnic nerve, namely, at the root of the neck and the upper part of the thorax. The active electrode is placed over the antero-lateral aspect of the kidney. This electrode should be about 100 cm. square, and should be saturated with a solution of sodium salicylate, from 3-5% in strength. It should be connected with the negative pole, and a current of from $\frac{1}{2}$ to 1 milliampère per square cm. of active electrode should be allowed to pass for 20 or 30 minutes. The sensitiveness of the patient must be our guide. The treatment should be given daily at first, then three times a week. Salicylic acid will penetrate into the body from the negative pole towards the positive and will thus enter the renal region.

Another use of ionization is in *renal fistulæ* which fail to close. Zinc chloride is used as the active agent, with a cylindrical electrode made of zinc, corresponding to the length and diameter of the fistula. The fistulous tract is first washed with a weak solution of zinc chloride, and the zinc electrode is introduced and attached to the positive pole. A large flat electrode is now soaked in salt water and placed upon the abdomen. A moderately intense current should be used to secure a slight cauterization, say from 2 to 3 milliampères for 10 or 15 minutes. The treatment may be repeated after an interval of eight days. It might be mentioned, in passing, that this treatment is excellent also in anal fistulæ, and in tuberculous abscesses. In the latter cases the zinc electrode should be wrapped in cotton soaked in the zinc solution. If there is any difficulty in removing the electrode the current should be reversed for a minute or two.

In the bladder ionization may be employed for cystitis and for vesical neuralgia. The treatment is especially indicated in *chronic cystitis*,

gonorrheal, tuberculous, etc. The symptoms are very rapidly relieved. The pus, however, disappears less rapidly. The trouble with ordinary treatment of the bladder is that the solutions employed are not absorbed. This is quite different with ionization, which allows us to act upon the entire wall of the bladder. Special instruments are necessary for this method of treatment, and the author has devised such appliances. These instruments consist of a set of elbowed catheters, No. 20 F., with lateral openings close to the end. Into these catheters a metallic stem or stylet, made of silver, copper, zinc or aluminum, as the case may be, is introduced, and over the end of this stem is fitted a metallic coupling, which not only enables one to connect the metallic stem to the proper pole of the electric apparatus, but is also provided with an irrigating attachment. The pole to which the apparatus is connected varies necessarily with the *ion* which we wish to introduce. The metals and the alkaloids must be connected with the positive pole. On the other hand, elements such as iodine, sodium salicylate, etc., must be connected with the negative pole. The strength of the solutions should vary according to their caustic properties. Thus, sodium salicylate should be used in the strength of 5%, while zinc chloride or silver nitrate should not be employed in strengths over 1:500. The strength of the current to be used varies from 2 to 5 ma., while the duration of the treatment should be from 10 to 15 minutes.

Before beginning the ionization of the bladder, this viscus should be washed thoroughly with a solution of the *ion* to be employed, at a temperature of about 98° F. It is well to test the irrigating attachment before starting the current. During the treatment the catheter should be changed in position from place to place, so as to avoid acting upon a limited part of the bladder. It is best to leave some of the liquid in the bladder after the treatment, especially if sodium salicylate has been used.

In *vesical neuralgias* the technique is the same, and either salicylic solution or cocaine may be used. In the latter case the solution is placed in contact with the positive pole. A solution of cocaine one-tenth per cent. in strength is used, of which 100 grams are injected and a very mild current, such as 1 ma., should be passed. Care should be taken to have the patient empty his bladder after the treatment with cocaine.

Another application of this method is in *diseases of the urethra*, especially in chronic affections of this canal. The success of this treatment is proportionately greater in cases in which the deep glands are not involved. One method is to employ positive ionization *with the naked electrode*. The bladder and the urethra are first washed with a very

weak solution of the salt or metal to be employed. Then a Beniqué sound of the proper size, and made of the same metal (zinc or silver, etc.), is introduced. Great care must be used to avoid cauterization of the mucosa. With the silver *ion* the following technique is used: The bladder and urethra are washed with a 1 :2000 solution of silver nitrate. The urethra is then anesthetized with a solution of cocaine. A silver sound is then introduced, attached to the positive pole, and lubricated with the following solution:

R	Silver nitrate.....	1 part
	Glycerin	50 parts
	Distilled water	50 parts

A current of 3 or 4 ma. is used twice weekly for 10 or 15 minutes. Instead of the naked electrode, an electrolytic solution may be used, *i. e.*, a solution of the salt of the metal to be used in the treatment.

As a general rule, the author is opposed to the use of the positive pole in the urethra, because this pole produces a greater degree of irritation than the negative. He has devised special sounds for the ionization treatment. The distal end of these is about 2 cm. long, and is curved like a Beniqué, with a diameter of 25 F. The rest of the sound is of somewhat smaller diameter, and is hollow, with numerous small openings in the wall. An obturator for this sound is provided, made of silver or zinc, etc. The author prefers the solution of salicylic 1 : 200, acting throughout the negative pole. This is used for 7 or 8 minutes, with a current of from 4-5 ma. In cases of posterior urethritis the salicylic solution can be used with the aid of a sound which is fenestrated only at its vesical end. Ionization should be combined with massage, dilatation and irrigation. The treatment is habitually concluded with an application of the high frequency current intra-urethrally. The remainder of the article is devoted to the question of the electrolysis of strictures.

3. INFLAMMATORY STRICTURES OF THE PROSTATIC URETHRA.—Li Virghi asserts that strictures of the prostatic urethra, due to gonorrheal infection, are far more frequent than is generally believed. Histologically they are identical with anterior strictures. Strictures in the prostatic urethra are always associated with one or more narrowings of the anterior canal, but the anterior strictures are older and further advanced. It is often necessary to enlarge the anterior strictures first, before we can explore the prostatic stricture. The exploration of the prostatic canal should be carried out with the aid of metallic olives strung upon conducting sounds. The treatment of prostatic strictures is best carried out by means of circular electrolysis.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

VOL. XXVIII, II, No. 18, 1910.

1. Ureteral Catheterization and Intra-Vesical Separation of the Urine. By Drs. Heitz-Boyer, Luys, and Marion. (A Symposium).
2. A New Model of Urethral Irrigator for Massaging the Canal While Irrigating. By E. Jeanbrau.
3. A Prostatic-Vesical Calculus. By Dr. Sophroniess.

1. SYMPOSIUM ON URETERAL CATHETERIZATION AND THE USE OF SEPARATORS.—Three articles are presented under this heading, contributed by Heitz-Boyer, Luys and Marion. The first of these authors, Heitz-Boyer, is in favor of ureteral catheterization according to Alberan's method. He insists that the separator is not as certain in its diagnostic value as the ureteral catheter, and cites examples which show the errors that may arise from the use of the separator. The separator gives a sense of false security. One of the cases cited is of especial interest, because the mistake resulting from the use of the separator ended fatally.

The case was observed in Marion's service, and is reported with his permission. This was a woman with tuberculous cystitis and renal tuberculosis. It was a question as to which side was affected, and what was the condition of the opposite kidney. Separation of the urine was practised, and everything pointed to the involvement of the left kidney. The latter was, therefore, removed and was found to contain a moderate degree of tuberculous involvement with a small cavity at the upper pole. Complete anuria followed the operation, and the patient herself began to suspect that her best kidney had been removed. On the third day, the anuria continuing unchanged, exploratory nephrotomy was decided upon on the opposite side. The right kidney was found fairly normal in appearance, though distinctly lobulated. On incision, however, it was found to be a mass of pus and cavities, and the ureteral outlet was practically obliterated. The patient died six days after the operation. This case strikingly shows the danger of trusting to the separator. Had the ureteral catheter been used, the patient surely would have been saved.

In addition to the positively dangerous errors that may be made with the separator, this method often gives insufficient information, and cases are cited by the author in support of this view. Moreover, the method of separation gives no opportunity for the treatment of the pelvis, the treatment of anuria, etc. The difficulty of ureteral catheterization and

its alleged dangers have been greatly exaggerated. Proper training in this method for two or three weeks will enable any skilful cystoscopist in mastering the method.

The second article, by Luys, takes the other side, and offers a thesis in favor of the separator. The conclusions offered by Luys is the same which he presented eight years ago, namely, that the separator is simpler to employ, is exempt from all dangers, and can be used for the functional diagnosis of the kidneys in a wider range of cases than ureteral catheters. Luys emphasizes the necessity of properly applying the apparatus. When this has been done, the results are as trustworthy and as exact as those obtained with the catheters. A method should not be blamed for the faults of those who use it. Luys quotes, in support of his contentions, the testimony of Professor Cestan, of Toulouse, and of Hartmann, of Paris, who completely endorse his views.

The third article, by Marion, is interesting, inasmuch as it shows the transition of his views from those of a partisan of the separator to those of an advocate of ureteral catheterization. Marion reviews the case already reported by Heitz-Boyer (see above), in which death occurred as a result of a mistake in the findings obtained with the separator. The question was, if the error resulted from an improper application of the separator, how is it possible to know when the separator has been properly applied? What is the criterion, if the finding of bloody urine on one side and of clear urine on the other, is not a proof of effective separation? In Marion's opinion, the separator is an untrustworthy, and therefore a dangerous instrument. After having been a partisan of this instrument, he has completely and definitely abandoned it. In this he is not alone, for the Necker school has long ago completely rejected it. Other authorities who reject the separator are Bazy, of the Beaujon Hospital; Legueu; Oraison, of Bordeaux; Rafin, of Lyons; Kapsammer, etc. Even Luys himself, who has invented the best separator in existence, says that the only method of studying the separative secretions of the two kidneys with absolute exactness is the use of the ureteral catheters left in place for twenty-four hours. In concluding his study, Marion sums up as follows:

1. Ureteral catheterization constitutes a therapeutic method of the greatest value, which is but too little known and too infrequently employed.
2. The ureteral catheter may serve for the evacuation or drainage of the pelvis, or for its disinfection by irrigations. It may also serve to dilate or disinfect the ureter.
3. Ureteral catheterization may be used with great advantage in

anurias, in pyelonephritis, in hydronephroses, in lumbar urinary fistulæ of renal origin, and in certain operations in which we try to avoid contact of urine with the operative wound.

4. Ureteral catheterism offers a method of treating successfully all types of anuria, save those due to cardiac or renal disease.

5. In pyelonephritis, particularly those of pregnancy, ureteral lavage constitutes the treatment of choice.

2. A NEW MODEL OF URETERAL IRRIGATOR TO BE USED WITH MASSAGE OF THE CANAL.—Jeanbrau reports that he has obtained excellent results in the treatment of chronic urethritis with an irrigator which can be used in combination with massage of the canal. He has perfected a new model of this instrument. The irrigator consists of an outer sheath, the end of which is curved like that of a sound, while its stem is fluted and provided with a series of narrow slits. Into this sheath glides the irrigating stem itself, which has openings at its extremity. By varying the distance of the inner irrigating tube, one can throw the jet of liquid through any part of the out sheath and thus can irrigate any part of the anterior urethra. The beak of the instrument is introduced into the posterior part of the canal, the stream of solution is allowed to expand the urethra, while the glands are massaged with the fingers over the grooves of the instrument, thus expressing the orifice of the glands and at the same time washing out their contents.

ANNALES DES MALADIES DES ORGANES GENITO-URINAIRES

XXVIII, II, No. 19, 1910

1. Some Facts Intended to Serve for a Critical and Comparative Study of Ureteral Catheterization and of the Separation of the Urines. By Dr. Cathelin.

2. Endovesical Separation of the Urines and Ureteral Catheterism. By Dr. Georges Luys.

3. Cancer of the Prostate. By H. Young.

1. THE URETERAL CATHETER VERSUS THE SEPARATOR.—Cathelin presents a brief review of the comparative value of ureteral catheterization and the endovesical separation of urines. He cites cases where one method succeeded while the other failed. The cases were carefully observed and very great pains were taken with the technique. The main point shown by the cases in question was that an expert failed in several of these patients to catheterize the ureters, while the urinary separator allowed a satisfactory examination, which was followed by opera-

tive measures which saved the life of the patient. The three great causes interfering with ureteral catheterism are: (1) The smallness of the bladder capacity; (2) the impossibility of finding the ureteral orifice on account of the vesical lesions; and (3) the obstruction of the ureter a few centimeters above the opening which blocks the catheter after it has been entered.

2. ENDOVESICAL SEPARATION OF URINES VERSUS THE URETERAL CATHETER.—G. Luys answers the recent article published by Dr. Marion in which the latter criticised the method of separating the urines from each kidney by means of Luys' apparatus. The present author insists that his method is clearly and surely efficient. The proofs which can be adduced of the efficiency of his method are several. The apparatus must, however, be properly applied: (1) The patient must be in the sitting position, with his trunk erect. (2) The examiner must make sure that the curve of the separator is correctly placed in the base of the bladder, hugging the bottom of that organ, between the two ureteral openings. This is done by palpation, vaginal or rectal. (3) The jets of urine coming from each side must not be ordinarily simultaneous, but must frequently alternate. (4) Finally, the chemical analysis must show a material difference between the urine on each side. If there is not a considerable difference *in the amount of urea excreted*, it is best to perform a second or even a third separation, combining the latter with the methylene blue test, with the indigo-carmin test or other functional tests. When the results of all these do not agree, the separation should not be considered as accomplished. In cases in which there is a grave responsibility on account of the patient's desperate condition, especially in cases in which catheterization has been found impracticable, it is best to perform several separations. A nephrectomy should be performed only when a considerable difference in the excretion of urea has been found between the urine excreted by each kidney.

In cases in which the bladder is very sensitive (and it is these particulars which often demand a separator owing to the fact that catheterization of the ureters is difficult or impossible), a subcutaneous injection of morphine or of morphine and scopolamine, may be employed for purposes of anesthesia. In some of these cases spinal anesthesia is advisable, with stovaine. At any rate, chloroform or ether anesthesia is impracticable with the separator, on account of the necessity of maintaining the erect position. Usually a very brief anesthesia with ethyl bromide suffices in cases in which the separator has to be employed in a sensitive bladder. In such cases the author gives the anes-

thetic only during the introduction and adjustment of the apparatus, ceasing its administration during the collection of the separated urines. In closing, the author points out that the method of separation should not be considered as antagonistic to ureteral catheterism, but as a distinct addition to our methods of diagnosis.

RIVISTA UROLOGICA

VOL. I., No. 5, (July, 1910)

1. Forci-Pressure, Applied Systematically in Nephrectomy. By S. D'Este.

2. Contribution to the Study of Large Solitary Renal Cysts. By S. Niosi.

3. Profuse Bleeding from the Bladder as an Early Symptom of Slight Prostatic Hypertrophy. By Prof. Loumeau.

1. FORCI-PRESSURE APPLIED SYSTEMATICALLY IN NEPHRECTOMY.—D'Este discusses the advantages of forci-pressure in nephrectomy. The method was introduced in 1893 by Tansini, and has three advantages:

It permits of a rapid isolation of the organ;

It secures a complete, prompt and reliable arrest of hemorrhage;

It prevents all the possible complications which arise from the infection of sutures.

Tansini, in commenting upon the mortality of nephrectomy, says that, with the exception of cases in which death occurs late, as the result of renal insufficiency, the majority of deaths after nephrectomy may be ascribed to errors in technique. The operation may have been too prolonged, or the anesthesia may have lasted too long, or death occurred from shock, from hemorrhage, which may have been primary or secondary, or from septic infections. Tansini attributes his own fortunate statistics chiefly to the technique which he has adopted since 1893. Thus Tuffier had a mortality of 16%; Giordano, 20%; Israel, 25% in pyelonephritis, and 13% in all cases. On the other hand, Tansini's mortality was 3%, and he attributes his success to forci-pressure.

The most delicate part in the operation of nephrectomy is the isolation and treatment of the pedicle. In cases with chronic suppuration, there are usually dense adhesions around the organ and the vessels. In these patients, however, it is important not to prolong the operation, because they have been weakened by septicemia, loss of blood, etc. Forci-pressure, therefore, offers a convenient method of taking care of the pedicle. Most of the accidents of nephrectomy, indeed, occur while the operator is isolating and ligating the vessels. A number of surgeons

have reported that they have accidentally torn the vena cava, the patient dying of hemorrhage. In some cases patients were saved by the prompt application of clamps.

In his earlier operations the author allowed the clamp to remain in place for three days; gradually, however, he shortened this time, and now allows them to remain in place for from 36 to 48 hours at most, and has not had any secondary hemorrhage. The instruments best adapted to this purpose are pressure forceps with long blades, which are sufficiently curved to allow of easy application. Two of these may be sufficient. In other cases smaller forceps, or ordinary artery clamps, may be needed to clamp the smaller vessels. When the lower pole of the kidney has been isolated and sufficiently freed, the organ should be drawn slightly outward and one of the large curved forceps should be applied to the pedicle. This allows the organ to move somewhat more freely, and a second clamp, which may be a straight one, is applied to the pedicle, from before backwards. If a small portion of the pelvis happens to be inclosed in the bite of the forceps, it will become necrosed, and will be thrown off later, say from ten to twelve days after the operation. Very rarely this interferes with primary union.

The operation with this method should not last more than half an hour.

2. LARGE SOLITARY CYSTS OF THE KIDNEY.—Niosi reports the case of large single cysts of the kidney in a woman aged 47, making the case a text toward the consideration of the entire subject. The patient began to feel pain and noticed a swelling in the right lumbar region about two months before admission. There was a marked prominence in the right side of the abdomen, and on palpation a mass was felt extending from the right hypochondrium down to about two inches to the right groin. The characteristics of the swelling were those of a cyst. An oblique abdominal incision was made, and the tumor was found to occupy the region below the right kidney, being connected with its lower pole. The cyst was removed retro-peritoneally and the cavity packed. The patient made a good recovery. These large isolated renal cysts are rare, Simon in 1906 having collected but 52 cases in the entire literature. Simon's collection is fairly complete, although he missed some communications which the author quotes. Cases were also reported since 1906 by Bruni, Semb and Lissowski. According to Simon's figures, these cysts occurred principally in adults. He found seven cases in patients under twenty, one of which occurred in a child of four years old. A considerable proportion of the cases occurred after 50. The affection is more common in women. It is impossible to say whether any definite

influence may be traced from pre-existing diseases to the formation of these cysts. In many cases the patients gave histories of pre-existing infections. It is noteworthy, however, that in most cases in which the kidney tissue was investigated there were no evidences of chronic nephritis, save at the boundary of the cyst, where the renal tissue had been compressed. It seems that if infectious diseases were responsible for the formation of renal cysts these growths would be far more frequent than they have been found.

RIVISTA UROLOGICA

Vol. I., No. 6 (August, 1910)

1. Clinical Contribution to the Study of Perirenal Tissues of the Kidneys and the Ureter. Part I.—Perinephritis, by G. Lorenzani.
2. Cystoscopy and Catheterization of the Ureters in Infants. By C. Bruni.
3. A Warning for More Care in the Interpretation of Wassermann's Reaction. By A. Freudenberg.
4. The Ambulatory Treatment of Acute Epididymitis. By S. Colondino.

2. CYSTOSCOPY AND URETERAL CATHETERIZATION IN INFANTS AND CHILDREN.—Bruni comments upon the fact that affections of the urinary tract in children are difficult to diagnose, on account of the obstacles to a careful examination of the bladder and the ureters. In cases of stone in the bladder it is true something can be done, with the aid of a stone searcher of small calibre. There are some cases, however, in which small stones are impossible of detection by this method. Given a case of pyuria or hematuria, a thorough diagnosis cannot be made in children without a cystoscope. There is no reason why this instrument should not be used in children, provided it be of sufficiently small calibre. Thus the double-prism cystoscope of Frank has a calibre of only 13 F. and is furnished with a correction lens which makes objects appear about their natural size. The only inconvenience of this instrument is that its field is necessarily small and that patience is required for a thorough exploration of the bladder. This instrument can be used in children of two years and upwards. Winternitz has studied the size of the urethra in children and found that the following figures corresponded to the different ages:

At 2 years, 13 or 14 F.	At 4 or 5 years, 17 F.
At 3 years, 16 F.	At 5 or 6 years, 18 F.
At 7 or 8 years, 19 F.	

As we know, however, this measure has but a relative value, and both in children and adults the distension of the ureter varies in different individuals.

In the author's experience, as well as in that of Portner, of Baginsky's clinic, cystoscopy can be performed in children after the second year, while the ureter can be catheterized after the eighth year. In girls, however, the ureters can be catheterized from the first year of age. The benefits from these examinations have been repeatedly reported by various authors, as, for example, in a case related by Holländer, in which a girl of eight months was found to have a suppurative condition in the left kidney, and nephrectomy was performed with favorable outcome.

It is not necessary to employ general anesthesia for cystoscopy, but chloroform anesthesia is useful for ureteral catheterization in children. The instrument which the author uses for catheterizing the ureters in children has a calibre of 18 F. and carries a catheter No. 5 F. It is constructed upon the system of Albarran, and its optical field is small, but sufficient for one with experience to find the ureteral opening. The author concludes his article with brief notes on five cases in children from 3 to 7 years of age in whom cystoscopy was successfully performed. The ureters were catheterized in two cases, the children being 9 and 11 years old, respectively.

4. THE AMBULATORY TREATMENT OF ACUTE EPIDIDYMITIS.—Colondin describes a method of treatment for acute epididymitis which he has used for the past two years with considerable success. The treatment is based upon two principles: The maintenance of the parts in an elevated position, and their absolute immobilization—principles which are commonly applied in the treatment of acute inflammatory processes elsewhere in the body.

The ordinary suspensory bandages are deficient in two respects: They do not elevate the parts, nor do they immobilize them perfectly. The pain and other symptoms persist, and the patient must be kept in bed; but even while he is in bed, the slightest movement of the body is transmitted to the inflamed parts and thus gives rise to excruciating pain.

The bandage which Colondino employs relieves pain immediately and allows the patient to go about. The materials required are two gauze bandages, two starched broad bandages, some cotton and some gutta percha tissue. The patient is placed in a horizontal position, with hips elevated. The diseased organ is brought upon the groin, corresponding to the affected side. The same is done on the opposite side. While an assistant holds the organs in this position, a hot compress is

applied, which is covered with a layer of cotton, reaching from the groins to the umbilicus. The gauze bandage is next applied, beginning with a few turns around the trunk at the level of the navel, then, in the usual manner, from the right or left iliac spine over the groin and around the side, crossing the perineum, etc. Over the soft gauze bandage the author applies in the same manner, but in an ascending direction, a starched bandage.

The relief is almost immediate. The patient walks out perfectly at ease, and his fever and the general symptoms rapidly disappear. The patients are able to continue their work. Furthermore, they are able to come to the physician and to continue their treatment for the urethritis. Usually the bandage is allowed to remain in place for 10 or 15 days. Then an ordinary suspensary may be applied; the pain does not recur, and if there is any infiltrate left in the epididymis its absorption may be favored by gentle massage. In most cases the bandage is well borne and the pain does not recur. Should it reappear, however, the bandage must be removed and a fresh one applied. The reason for this is that the inflamed organ may have increased in size, or may have slipped down, thus being compressed by the stiff bandage. In every obstinate case, which are quite rare, the pain recurs and the bandage must be re-applied daily, in order to repeat the hot compress. If there are pains deep in the pelvis, due to inflammation of the vas deferens, it may be necessary to give sedatives in addition to immobilizing the epididymis.

RIVISTA UROLOGICA

VOL. I., No. 7 (September, 1910)

1. Transvesical Prostatectomy in Prostatic Hypertrophy. By Dr. Gallois, of Lille.

2. The Tubercle Bacillus in the Genito-Urinary Organs. By A. Hogge.

3. Conditions in Urinary Surgery to Be Observed in Patients About to Be Operated Upon (To be continued). By F. M. Grasso.

1. SUPRAPUBIC PROSTATECTOMY.—Gallois, in a paper reviewing the surgical treatment of prostatic hypertrophy, declares that the method of choice to-day is transvesical prostatectomy, according to Freyer's method, which should replace catheter life for prostatitis. The transvesical operation, in his opinion, is the only proper treatment for hypertrophy of the prostate, when a complete or incomplete vesical retention is present, accompanied by danger of infection. Three cases illustrating the results obtained with Freyer's method are described. An important point is

the after-treatment, which requires much patience and skill. After the operation, Gallois is in the habit of removing blood clots which may obstruct the drainage tube by aspiration. The shock is combatted by injections of ether or caffein, if necessary. Duhot recommends washing the bladder through the drainage tube with a solution of silver nitrate in the strength of 1 : 2000, for the purpose of securing arrest of hemorrhage and antisepsis. The vesical irrigations are continued during the first three or four days. Then the glass drain is removed and Irving's apparatus is applied directly to the abdominal wound. This consists of an oval box of ebonite or metal, which is adjusted over the Freyer drainage tube, through which the urine is collected. The fluid is drained from the box into two rubber tubes which lead it to a urinal. Gradually the size of the drainage tube is made smaller. From time to time the edges of the wound may be touched with tincture of iodine in order to promote healing. About the sixth to the tenth day a permanent catheter is introduced into the urethra, and irrigations with silver nitrate solution are made through this catheter. The latter should be No. 20 or 22 F., and should be changed if it becomes clogged or seems infected. The catheter may be removed as soon as the abdominal wound has closed. Elderly patients should be allowed to sit up in bed as soon as possible and to get up just as soon as the abdominal wound will allow. Frequently the catheter may be removed on the twentieth or thirtieth day, when the patient will be able to urinate spontaneously. Irrigations of the bladder should be continued for some time afterward.

ANNALES DES MALADIES VÉNÉRIENNES

VOL. V., No. 8 (August, 1910).

1. Intra-spinal Injections of Mercurial Salts. By A. Lévy-Bing and G. Lévy.
2. Mercurial Stomatitis. Alcoholic Hypertrophic Cirrhosis. By Dr. Milan.

VOL. V., No. 9 (September, 1910).

1. A Criticism of the Results Thus Far Published with Ehrlich-Hata Preparation No. 606 in the Treatment of Syphilis. By M. R. Burnier.
2. Simplified Methods of Performing the Wassermann Reaction. By E. Joltrain and R. Benard.
3. The History of a Specific for Syphilis (To be continued). By Dr. Payenneville.

1. CRITICAL REVIEW OF THE RESULTS WITH EHRLICH'S REMEDY FOR SYPHILIS.—A review of this subject has been prepared for the American Journal of Urology, and appears in the current issue.

2. SIMPLIFIED METHOD FOR THE WASSERMANN REACTION.—Joltrain and Benard simplified the original Wassermann method in several respects. They compared their method with the original technique, and found that their procedure gives very satisfactory results. In 93% of the cases examined the results of the two methods were identical. The simplified method was doubtful in 5.5%, and gave a false result in 1.5%. The process used by the authors appeals chiefly on account of its simplicity. In a complete review of the various methods hitherto employed, the authors speak of Noguchi's method, with the dried re-agents fixed upon filter papers. In 66 cases examined by the Noguchi method, as well as by the Wassermann method, they found the results to be identical. These results, however, were obtained with papers which had been obligingly sent them by Dr. Noguchi. When they tried to repeat the work with reagent papers of their own make, the results were not so good.

The method which the authors used is a modification of that of Hecht, and similar to that recently described by Sabrazès and Eckenstein (*Lancet*, January 22, 1910.) The advantage of the method is that the antigen is easily procured, and when once prepared and standardized is always ready for use. By using fresh serums, which can be kept on ice for at least 48 hours, it is no longer necessary to use the serum of guinea pigs as a complement. When old or heated serums are used, they can be re-activated with a drop of fresh normal serum. The same is true when the reaction is tested in the cerebro-spinal fluid. A control tube is employed to detect rapidly the insufficiency of complement in a serum.

Noguchi and Hecht, some time ago, showed that human serum contained a certain quantity of a "sensitising substance" towards the red blood cells of the sheep. This substance has even the property of progressively increasing the activity of any complement contained in serum. After having examined numerous human sera, it has been found that 1 cc. may contain as much as 20 units of normal anti-sheep amboceptor. It is, therefore, unnecessary to employ a hemolytic serum, and it suffices to use the red blood vessels of a sheep. The serum which is to be tested contains enough sensitising substances to hemolyse these red cells when the complement remains free.

In the experiments under discussion the authors employed as antigen an alcoholic extract of the human heart, prepared according to the method of Sabrazès and Eckenstein. This antigen was titrated accord-

ing to the classical method, and the quantity of the extract was measured in drops—a very much simpler procedure than that usually employed. The authors noticed that the fixation of the human complement by the mixture of antigen *plus* sensitising substance occurred very rapidly, while the action of the anti-sheep amboceptor upon the red cells of the sheep was very slow. Therefore, they mixed directly antigen, serum and red cells, and placed the mixture in thermostat. This procedure is very rapid and simple. Three tubes were used for each reaction. No antigen was placed in the third tube, which therefore served as a control. The following table shows the doses employed in terms of drops. This drop method is more rapid and more simple than the classical method:

Tube No.	Antigen 1:5	Normal Salt Solution $\frac{8}{10}\%$	Serum	Red Blood Cells 1:2
1	2	16	2	1
2	3	15	2	1
3	—	18	2	1

The whole process lasts but half an hour. The fixation of the complement is accomplished very rapidly, while the hemolytic action of the human serum upon the red blood cells of the sheep is much slower. The reaction is terminated when hemolysis occurs in tube 3. The reaction is positive when there is no hemolysis in the first two tubes.

ZEITSCHRIFT FÜR UROLOGIE

VOL. IV., No. 8, 1910.

1. A Case of Cyst-like Dilatation of an Accessory Ureter. By S. P. von Fedorow.

2. Second Contribution to the Physiology and Pathology of the Prostate. By J. P. Haverern and A. Makai.

3. Gonorrheal Infection and the Origin of Accessory Urethral Pockets. By C. Gutmann.

1. CYST-LIKE DILATATION OF ACCESSORY URETER.—Fedorow's patient was a woman, aged 26, who applied for treatment for frequent and painful urination, as well as urinary retention. She had been ill for eight years, during which time she had been treated with various mineral waters, etc. The cystoscope showed a normal right ureteral opening, but in the neighborhood of the left ureter there was an ovoid swelling of the size of a plum. The opening of the ureter was situated eccentrically over this swelling. On catheterizing the left ureter it was found that

the wall of the swelling was invaginated by the catheter. The swelling reached downward as far as the neck of the bladder and was covered with almost unchanged bladder mucosa.

Suprapubic cystotomy was performed, and the swelling exposed. The left ureter was catheterized and the swelling was aspirated, revealing a cloudy, watery contents. The cyst was incised, and it was found that the catheter had not penetrated into the cyst, but that it had passed through what appeared to be a separate channel of the left ureter. A sound introduced into the cyst did not reach its upper end. An opening was left in the lower and anterior portion of the wall of the cyst, the edges being sewn to the bladder wall by means of catgut. The patient made a good recovery and had no further trouble with urination. The cyst was a dilated portion of an accessory canal which ran parallel to the left ureter.

2. THE PHYSIOLOGY AND PATHOLOGY OF THE PROSTATE.—Haver-
ern and Makai complain of the scarcity of reliable information regarding the physiology and pathology of the prostate. While much material is available, yet broad generalizations cannot be made from the material at hand. As yet we have no definite proof, for example, that the prostate develops an internal secretion, although we are familiar to some extent with the functions of the external secretion of this gland. Some authors assert that the internal secretion of the prostate has a great deal to do with the nerve supply and the muscular action of the neck of the bladder, as well as with the mechanism of the manufacture of semen. Other authors remind us that prostatectomy at times produces severe nervous and psychical disturbances, which have a profound influence upon metabolism. According to Rovsing, prostatectomy is a more severe procedure on this account than is castration; and for this reason we should hesitate to remove the prostate in younger men. It is remarkable, in view of these statements, that but a very small proportion of patients show marked disturbances of the nervous system or of metabolism after prostatectomy. The theory is very attractive, but there is no proof to substantiate it.

Another exaggerated idea is that various nervous affections of the bladder are due to the destruction of prostatic tissue through suppuration or inflammation. Very little is known as yet as to the real nature of prostatic hypertrophy. Some authors have compared the hypertrophied prostate to the uterus of a woman with fibroids. Histologically, the hypertrophied prostate resembles more closely fibroma of the breast than any other process that can be mentioned in this category. The influence of the breast upon the contractions of the uterus may be said to be anal-

ogous to the effect of the prostate upon the genital tract. Desnos has found that a large proportion of women over 65 years of age suffer from urinary disturbances which are quite similar to those known as prostatism.

The authors conclude with remarks upon the great difficulty of carrying on experiments upon animals, especially dogs, for the purpose of studying the functions of the prostate.

HEGONON, A NEW SILVER PROTEID COMPOUND OF SCHERING

Prof. Klingmueller, of the Dermatological Clinic, University of Kiel, reports (*Muench. Mediz. Wochenschrift*, 1910, No. 32) the results of his comparative clinical experiments with Hegonon and other silver proteid compounds. The new compound, which is obtained by treating albumose with an ammoniacal solution of silver nitrate, is a light brown powder, readily soluble in water and containing approximately 7% of organically combined silver. Its aqueous solutions do not coagulate albumen, even on heating, and are not precipitated by sodium chloride. The indications of hegonon are the same as those of other silver proteids. So far it has only been systematically tested in gonorrhea, in which $\frac{1}{4}$ % solutions have yielded excellent results, recourse to higher concentrations appearing unnecessary. In this concentration the solutions are almost colorless and cause practically no staining.

Prof. Klingmueller finds that in the treatment of simple anterior gonorrheal urethritis hegonon is at least the equal of the other preparations he tested. Its great superiority over other silver proteids, however, lies in the fact that it far more effectively inhibits complications. Of thirty-eight cases treated with hegonon not a single one developed complications (posterior urethritis, prostatitis, epididymitis). The author also finds that complicated cases of gonorrhea, originally treated with hegonon, show a prompter disappearance of the organism than those in which the other preparations were used. He concludes from his experiments that hegonon deserves first place among modern silver proteid compounds.

REMOVAL OF NEOPLASMS OF THE BLADDER

A new method of treating bladder neoplasms by high frequency currents is described by Edwin Beer, New York (*J. A. M. A.*, May 28th), which, he thinks, will be effective in the treatment of intravesical growths. He employs the Oudin current derived from a Wappler machine, placing the rheostat vertically, so that one-half the resistance is thrown into the circuit. The spark gap in the muffler was approximately from

one-tenth to one-eighth inch. A Nitze double catheter cystoscope was used. In one catheter tunnel he places the electrode, introducing it just as one introduces a catheter, while to the other catheter tunnel he attaches a tube for irrigation. The electrode is a simple six-ply cable of copper wire, thoroughly insulated with rubber and cut off squarely at the vesical end. It measured No. 6 French. The applications were made directly to the growth, the electrode being pushed a short distance in among the villi under the guidance of the eye and the current turned on for from 15 to 30 seconds at various points. The bladder was distended with distilled water. The immediate effects are striking, no spark is seen even with the full current without any resistance. Gas is freely generated and bubbles out of the growth, and if the point of application is superficial the blanching of the tissues is seen, and at the point where the electrode rested the tissues are blackened. Often as the electrode is withdrawn the tumor comes away firmly baked to its point. Bleeding rarely follows and is readily checked by a reapplication of the current. The rubber melts away from the heat at the end of the electrode, which has to be squarely cut off from time to time. He credits the well-marked necrosis to the heat, though other factors, ionization, electrolysis, probably contribute, how much he cannot yet say. The treatment caused no more discomfort than an ordinary cystoscopy. The bladder mucosa was but little affected by the application, though some congestion and trigonitis developed in the vicinity of the growth. While he has only employed this method in two cases, both large papillary growths, his experience has been so satisfactory that he recommends it. It suggests the usefulness of these currents in many other conditions, both in the bladder and in other parts, for example, tuberculous ulcers of the bladder, prostatic hypertrophy, growths in the urethra, etc. At a future date he promises to report these two cases in full, which is hardly necessary in this preliminary report.

MERGAL IN SYPHILIS

Dr. Bartholow, New York, makes the following conclusions (*Folia Therapeutica*, Vol. IV, No. 3):

(1) The virus of syphilis and its antigen are at present equally unknown. "Virus" does not refer to the spirocheta, but to its toxin.

(2) It must, however, be a single uncompounded substance, or a specific poison, and therefore the diagnostic serum should be constant in its action if it contains the true antigen.

(3) The use of mercury requires skill, intelligence, and an avoidance of the error of causing false "toleration" of the drug.

(4) Mercury succeeds best in the form in which it enters the blood most quickly.

(5) Mergal, among internal forms, enters the blood with the least expenditure and waste to the intermediate economy.

(6) It therefore equals the rapidity and intensity of inunctions and injections, and possesses fewer dangers.

BOOK REVIEWS

DIAGNOSIS OF SYPHILIS.—By George E. Malsbary, M. D. Harvey Publishing Company, Cincinnati, O., 1911. Price, half morocco, \$5.00.

This book takes up the diagnosis of syphilis in every detail; the Wassermann reaction is considered exhaustively and a complete index is appended to the chapter dealing with the serum diagnosis of lues. Every organ of the body is treated separately, and the differential diagnosis between syphilis and all other diseases likely to affect that organ is given. A bibliography of 117 pages gives the titles of practically all the important articles that have appeared on the subject of syphilis within recent years. The volume is a useful compilation and shows great industry on the author's part. The proof reading, we regret to say, could have been done better, for the volume contains numerous typographical errors. The printing and binding leave nothing to be desired.

LEHRBUCH DER UROLOGIE MIT EINSCHLUSS DER MÄNNLICHEN SEXUALERKRANKUNGEN.—Von Dr. Leopold Casper. Zweite Auflage, Urban & Schwarzenberg, Berlin. 16 Mark.

Several years have elapsed since the first edition of Casper's text-book on urology made its appearance. The second edition is now before us and this edition has been thoroughly revised and brought up-to-date. Not only has it been revised, it has also been enlarged. More space is given to the consideration of the treatment of the various forms of nephritis and all the latest developments in renal diagnosis, in the treatment of prostatic hypertrophy and tumors of the bladder have been incorporated in the respective chapters treating on these subjects.

The first edition of Casper's Urologie gained for itself many friends in all parts of the world, and we have no doubt that this second edition will prove still more useful, both to the general practitioner and to the urologist.

THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, M.D., Editor

VOL. VI

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Contributed to the AMERICAN JOURNAL OF UROLOGY.

REPORT OF AN INTERESTING CASE OF RENAL CALCULI*

By FERDINAND C. WALSH, M.D.
San Antonio, Texas.

THE following case is so much at variance with the general run of renal calculi that I consider it of sufficient interest to report in detail.

The patient, Dr. F. C. H., first consulted me December 14, 1909. At that time he complained of urinary disturbances, resulting from a prostatic abscess which had, in August of the same year, developed and subsequently ruptured into the urethra. This abscess formation had extended into the tissues surrounding the membranous urethra, thereby causing the formation of much scar tissue, which would not admit of the passage of the smallest instrument through the urethral canal.

On January 25, 1910, I operated and removed an irregularly shaped phosphatic calculus, measuring 9.5 by 6.4 by 4.8 mm., from the prostatic urethra, the stone being imbedded in the substance of the prostate. This removal was made after a perineal attempt, through a suprapubic incision, the dense cicatricial tissue formed after the abscess rendering it impossible to reach the bladder through the perineum without undue trauma. The bladder was closed and drainage instituted, after retrograde catheterization, through the perineum. From this operation the patient made an uneventful recovery.

A report of this case was made before the Kerr County

*Read before Bexar County Medical Society.

Medical Society, and subsequently published in the *Southern Medical Journal* of June, 1910.

At the time of the report note was made of the fact that the patient's condition was good, except for the continued presence of pus in the urine. Following this report the patient's pulse became markedly intermittent, a condition which had been noticed previous to the operation, but which had entirely disappeared during his stay in the hospital, and was noticed but occasionally for the succeeding few weeks. The frequency and difficulty in urination was entirely relieved.

A cystoscopic examination showed the right ureteral orifice normal, while the left appeared pouched, edematous, and from it could be seen issuing urine loaded with pus. A Roentgen-ray photograph, taken just after the cystoscopic examination, shows a dense shadow in the left kidney, which is also displaced downward. Numerous microscopic examinations of the pus secured on sedimentation of the urine failed to reveal the presence of tubercle bacilli. From the time of the patient's leaving the hospital after the first operation until his death at the second, his temperature, taken frequently during the twenty-four hours, never reached above 98° , and was often below 97° . There were no chills.

The kidney was barely palpable, no tenderness whatever was elicited on pressure. There had never been attacks of pain simulating renal colic, nor had there been more than a moderate amount of distress in the kidney region even after unusual exercise, and this distress was not confined to the left lumbar region, but was about the same on either side. The patient had never passed blood in his urine, nor were red cells found during the frequent examinations made.

The fact of a stone, of probable renal origin, having been formerly removed from the prostate, coupled with the suggestive X-ray photograph, led me to the diagnosis of renal calculus, in spite of the absence of the two cardinal symptoms of kidney stone, pain and hemorrhage.

Early in March an operation was advised and agreed to. Owing, however, to professional duties the patient delayed from time to time until September 5th, when he entered the hospital.

INTERESTING CASE OF RENAL CALCULI 547

After the usual attention to the intestinal tract he was operated upon September 6th.

Operation: An oblique loin incision, carried somewhat to the front, was made. The kidney was found deeply imbedded in



CALCULI, ACTUAL SIZE

old adhesions, and with great difficulty brought sufficiently well up into the wound to admit of its examination. On palpation before inspection calculi were plainly apparent to the touch. An incision in Broedel's line, slightly posterior to the convex border, was made by means of the introduction of a silver wire after the

method advocated by Richardson, of Johns Hopkins, thereby in a great degree lessening hemorrhage. The calculi were extracted, and the kidney wound, after thorough irrigation to remove small particles, was sutured. On account of the amount of healthy kidney tissue left in spite of the number and size of the calculi, a nephrectomy was inadvisable. A drain was inserted and the skin incision sutured. While the last sutures were being placed the patient suddenly became cyanotic. Efforts to resuscitate him were made and artificial respiration continued for two hours, but without avail.

The thoroughly septic condition of this patient, as evidenced by his general sense of bodily fatigue, long continued subnormal temperature and intermittent pulse, forbade his recovery. Had he submitted to operative measures when his condition was good, before the long-continued pus absorption had reduced his reserve strength, there is every reason to believe that he would have well borne the operation. His first anesthetic was well taken, and he received at that time more ether than he did at the last.

The case as a whole presents many interesting symptoms, the chief, however, being the absence of both pain and hemorrhage from the affected kidney.

Moore Building.

Contributed to the AMERICAN JOURNAL OF UROLOGY.

TOXIC ANURIA DUE TO BICHLORIDE OF MERCURY, WITH PATHOLOGICAL REPORT*

By LOUIS GROSS, M.D.
San Francisco, Cal.

ALTHOUGH there is extensive and voluminous material on anuria, both obstructive and non-obstructive, yet on toxic anuria the literature is very scant.

This case is interesting from the fact that the pathological report shows a similar condition to the experimental researches, and corroborates the fact established by Merklus in 1881, that anuria is not always followed by uremia and that uremia is not necessarily due to suppression.

*Read at the meeting of the San Francisco branch of the American Urological Association, August 18th, 1910.

Fowler, in 1881, published 8 cases of mercurial anuria; one was due to calomel, while the remaining 7 were caused by bichloride. The anuria in the case due to calomel was complete and of five days' duration. There were no uremic symptoms and the kidneys resumed their function. Of the 7 cases of bichloride anuria, only one recovered.

The following is the history, kindly given me by Dr. Ralph B. Scheier, the attending physician:

Emma Erickson, native of Sweden; occupation, domestic; age, 18. Past history, negative.

Present Illness.—On April 8, 1910, at 9:50 p. m., while laboring under a condition of extreme depression, patient took 40 grs. of bichloride of mercury. After waiting a period of ten or fifteen minutes she reported her act to neighbors, who were unable to obtain medical aid until 10:30 p. m.

Treatment.—Egg-albumen was administered and stomach flushed by means of stomach-tube. Patient was then conveyed to the hospital. Heat applied to the body. Morphine sulphate, gr. $\frac{1}{8}$ hypodermatically; demulcent drinks, like flaxseed tea. Temp. 99.2. Pulse 92. Resp. 24. Patient vomited fluid containing blood at intervals during night.

April 9, 1910.—At 1 a. m. voided urine oz. 12 containing albumen (trace); no examination for casts. Temp. ranged from 99.6 to 101.8. Pulse 94 to 110. To control vomiting, bismuth subnit. gr. 20, sodium bicarb. gr. 10, and cerium oxalate gr. $2\frac{1}{2}$. High saline enema given and patient had small defecation; catheterized at intervals of eight hours, but no urine was obtained. Normal saline sol., 250 cc. per rectum every four hours; lumbar region was cupped and hot flaxseed poultices applied over region of kidneys. Internally the following was administered:

R Pot. Acetat. gr. 20
 Spts. Aeth. Nit. dr. $\frac{1}{2}$
 Liq. Ammon. Acetat. q. s. ad oz. $\frac{1}{2}$

April 10, 1910.—Hot mustard pack ordered and pilocarpine Hydrochl. gr. $\frac{1}{10}$ hypo. Profuse sweating occurred. Digitalin gr. $\frac{1}{25}$ hypo. every four hours. Consultation with Drs. Louis Gross and Walter S. Johnson. Sparteine gr. 1 hypo.

every four hours; 500 cc. of a 25 per cent. sol. of glucose hypo., also normal salt sol. intravenously. Patient voided 1 *dram* of urine at 8 p. m. Temp. 101.2 to 101.8. Pulse 90 to 118. Resp. 20 to 22.

April 11, 1910.—Normal salt sol. by hypodermoclysis 250 cc., hot mustard pack for two hours, after which pilocarpine hydrochl. gr. 1/10 was given. Profuse sweating induced. Sparteine gr. 1 hypo. every four hours. *Patient voided no urine, bladder catheterized and minimis iii. obtained.* Temp. 100 to 101.4. Pulse 92 to 120.

April 12, 1910.—Temp. 101. to 101.8. Pulse 100 to 118. *No urine.*

April 13, 1910.—Treatment as above. Digitalin gr. 1/25, alternated with sparteine. Glucose 25 per cent. sol. 500 cc. hypo. Temp. 100 to 101.2. Pulse 105 to 120. *Urine minimis 38.*

April 14, 1910.—Treatment as above. Pulse 90 to 108. Temp. 99.4 to 101, saline infusion substituted for glucose. *Urine 3 drams.*

April 15, 1910.—Very weak. Pulse 80 to 120. Temp. 100 to 101.4. Vomited at intervals of one-half hour. *Urine 2 drams.* Died at 11:40 a. m.

ADDENDA.—Examination of urine daily. Albumen present in large amounts; no casts found; round and caudate cells present; also vesical epithelia; few erythrocytes; reaction of urine, neutral; large number of bacteria present.

The total amount of urine passed from April 9th at 1 a. m. to April 15th at 11:40 a. m., a period of 155 hours, was 6 2/3 drams.

The following report was submitted to me by Dr. E. C. Dickson, Assistant Professor of Pathology, Cooper Medical College:

"The kidneys when examined had been preserved in Kaiserling. They were swollen, congested, somewhat mottled apparently, although the amount of post-mortem degeneration had been rather marked. On section the cortex was especially changed by post-mortem degeneration, a margin of about 3/16 inch extending around whole periphery, where tissue was gray in color. The medulla better preserved; color red; striations

distinct. The cortex had apparently been considerably swollen. On microscopic examination there was a very marked congestion of the kidney and rather numerous polymorphonuclear leucocytes in the blood in the capillaries. There is congestion of some of the glomerular tufts, but many of them contain very little blood. There is no exudate into the clefts of the capsule. There is very marked and very diffuse degeneration of the tubular epithelium; practically all of the ascending limbs of Henle, and the convoluted tubules show marked desquamation and marked pyknosis and fragmentation of nuclei. In some places there are large round cells with large clear nuclei, which are evidently regenerated epithelial cells. In many of the convoluted tubules and in practically all of the limbs of Henle, and many of the collecting tubules there are hyaline casts. In some of the collecting tubules there is some desquamation of epithelium and some debris. There is moderate edema of the interstitial connective tissue, but practically no evidence of recent proliferation.

Diagnosis.—Acute Degeneration of the Kidneys, due to Corrosive Sublimate.

45 Kearny St.

Contributed to the AMERICAN JOURNAL OF UROLOGY.

TRAUMATIC AND POST-OPERATIVE RETENTION OF URINE

By CHARLES GREENE CUMSTON, M.D.
Boston, Mass.

THE following illustrative cases of traumatic and post-operative retention of urine are taken at random from my case records:

Case I.—Mrs. F. D., aged 27, was seen in consultation with Dr. Littlefield on March 12, 1896. The patient was a strong and well-nourished young woman, who had been delivered on March 2d of a healthy boy. There was no history of any bladder trouble nor of gonorrhea. The patient was not a neurotic subject.

An abscess of the left breast had developed, which was incised and curetted under ethyl bromide narcosis. Narcosis

lasted seven minutes. During the day the patient was quiet and free from pain, but as no urine was voided the catheter was passed at ten in the evening, the patient stating that it was impossible to urinate after several attempts had been made. The catheter was passed every six hours for four days, after which time the retention disappeared, the patient making an otherwise uneventful recovery.

Case II.—Mr. J. M., aged 21, fell from his bicycle in June, 1900, and sustained a simple fracture of the ulna and radius at the lower third of the left arm. Saw the patient a few minutes after the accident, which occurred at two o'clock in the afternoon. Ether was given and the fracture easily reduced. Narcosis lasted twenty minutes. On the next morning the nurse stated that no urine had been passed and palpation showed the fundus of the bladder was just above the pubis. After several attempts to pass his urine, and a hot bath being without effect, the patient was catheterized. Examination of urine was absolutely negative. There was no history of gonorrhea and the catheter showed no urethral obstruction. Retention lasted for two days, the catheter being passed every eight hours, after which time the bladder was emptied spontaneously.

Case III.—A young unmarried woman applied, in May, 1903, for treatment of a periosteal abscess of the left tibia. The abscess was opened, curetted and packed with gauze. Narcosis (ether) lasted fifteen minutes. Complete retention of the urine for two days, after which the patient micturated spontaneously for three days, when retention occurred again, this time lasting for forty-eight hours. The patient was discharged cured at the end of ten days. Urine was perfectly normal throughout.

Traumatic retention of urine is met with at all ages, but is probably more frequent in adults, because they are more subject to traumatisms than young people, and I am aware of only one published case in which this complication has occurred under the age of fifteen. Retention appears to be a little more frequent in the male than in the female, but this is probably due to the more complex arrangement of the genito-urinary system in the former.

Etiologically, the region where the operation or traumatism has taken place is of no real importance. Any traumatism may be followed by a retention of the urine, but in this paper we only wish to call attention to those cases in which the great vital functions have remained intact, leaving aside operations or traumatisms of the bladder, pelvis or genital system.

During a laparotomy where the bladder has been manipulated in breaking up adhesions or removing a large growth, the relationship of the various abdominal viscera to each other is suddenly changed, while operations on the penis, the perineum and anus, the dressings as well as the operation itself may be the real cause of the retention. The above mentioned regions form what may be called the "dangerous zone."

These cases are far too complicated and their study is not particularly profitable for this reason, and although they are by far the most frequently met with we will not consider them here, preferring to study retentions occurring after operations or traumatisms in other parts of the economy.

Any operation, no matter what the region, may give rise to a retention of the urine, but this complication becomes more and more infrequent the farther the traumatism is from the abdomen.

The shock need not necessarily be localized, for a general shaking up of the economy may be sufficient, as is demonstrated in railroad accidents where the subjects are exempt from any apparent traumatism. I do not believe that retention of urine in these cases necessarily means a symptom of hystro-traumatism, because many patients presenting this complication after operations do not offer a single symptom of hysteria, and in those cases where the genito-urinary system is normal some other cause must be found to explain the retention.

Micturition is a complicated reflex act, and presuming the urinary tract is free from any obstruction, we must have: First, a sensation of desire to urinate coming to the brain; secondly, a centripetal current; thirdly, contraction of the bladder; and, fourthly, relaxation of the sphincter.

The first two acts are nervous and command the latter, which are purely mechanical. It would, consequently, appear easy to

establish, *a priori*, the causes which may hinder the flow of urine. Nevertheless, there are a number of theories to explain a limited number of cases, while there are others which in themselves are sufficient to explain the cause. We will briefly review some of the theories:

Inflammatory swelling can only be a cause in cases of traumatism in the neighborhood of the urethra, and then it must be septic. The swelling, according to this theory, acts mechanically on the canal, obstructing its caliber and thus rendering the passage of the urine impossible. This theory is of little value excepting in cases of traumatism of the "genital zone," and will not be further considered here.

The dressings may have a real mechanical influence, if, for instance, they press the penis or perineum too tightly. In some cases recorded by Houillon compression was not the cause of the retention, but simply acted as a reflex cause, just as we observe in the dressing of a stump after an amputation, or after an operation on the breast.

It is well known that the abdominal muscles have a large share in the efforts necessary for micturition. Some authorities, however, believe that their action is perfectly useless and appear to think that the muscular layers of the bladder are quite sufficient, and conclude from very contradictory experiments performed on dogs that in no case is micturition interrupted by the non-contraction of the abdominal walls.

Such a conclusion is far from logical, because dogs differ physiologically from man, and our habits would hardly permit of our possessing a bladder as capricious and as intolerant as that of our faithful friends. It is, consequently, wiser to admit that a paresis of the abdominal muscles and the absence of diaphragmatic contraction is a cause of traumatic retention.

A fact that proves that the bladder itself is not always at fault when it cannot be emptied by the patient is that when a catheter is passed the urine is expelled in a jet, and more especially the fact that faradization of the abdominal muscles will favor micturition. When there is complete or partial dysuria we should not conclude that there is a paralysis of the vesical muscles, but rather of the auxiliary muscles.

This paresis, which is genuine in some cases, cannot be found in a large majority of others, so that in order to uphold this theory, we must take into consideration another element which is rarely wanting in subjects having undergone an operation or a severe traumatism; I refer to traumatic or operative shock. Instead of making any effort to aid the action of the bladder the patient, on the contrary, avoids all movement that can compress the viscera and, consequently, increase his suffering. Thus they remain usually immovable with complete muscular relaxation either because they suffer or because they fear that their cure will be compromised by movement. Now, if the inactivity of the abdominal walls was not a cause of the dysuria, the retention of urine could be made to disappear by gently compressing the hypogastric region with the hand, but when this is done, we only increase the suffering produced by the distended bladder and no urine is passed.

The narcosis has often been accused of producing retention of the urine, but this theory is without foundation when we recollect that retention follows operations where no anesthetic has been employed and more particularly after traumatisms. And for that matter, a narcosis cannot abolish the contractile powers of the bladder because its muscular layer is composed of unstripped fibres and, according to Guyon, it is only because the mucous membrane of the bladder loses its sensibility that the contraction of the muscular fibres are prevented.

Consequently, the above mentioned conditions by themselves alone cannot explain the mechanism of retention of urine and, *a priori*, they cannot be classed among the four factors permitting or preventing the function from taking place, viz., a reflex and a voluntary act on the one hand, and, on the other, a contraction of the bladder and relaxation of the sphincter.

This brings us to the consideration of two theories, namely, spasm of the urethra and contraction of the sphincter, and paralysis of the bladder.

An obstacle to the passage of the urine from spasms of the urethra is due to the contraction of the walls of the canal, and many surgeons admit this condition, placing it at the neck of the bladder. If there is no spasm how can we explain the pain pro-

duced by catheterism and the difficulty in introducing the sound, and especially the burning sensation experienced by the patient during a difficult but spontaneous micturition?

A distinction must be made between contraction and spasm of the neck of the bladder. The former is described as a morbid condition, characterized by disturbances in the passage of the urine and especially by pain, and is due to a permanent contraction of Wilson's muscles, as well as the urethro-vesical orifice. It is present in different degrees, according to the case, and may be sufficiently severe to produce retention of the urine, but usually it is not so marked. Spasm is a temporary condition and frequently complicates contraction and passes off suddenly.

Such is the current teaching, but nothing proves that it is correct. It may perhaps explain post-operative retention by a spasm of the urethra which escapes direct demonstration, or is wanting in those symptoms by which we usually diagnosticate it. It is the result of a reflex action that will be considered later on.

Paralysis or paresis of the bladder is also admitted by many authorities. Its occurrence is admitted for two distinctly different reasons, which are directly antagonistic to those above mentioned: First, because a urethral spasm can hardly ever be demonstrated, and, second, because the urine dribbles away without being forced outward when the catheter is in the bladder.

The first reason has only a negative value, because when there is no spasm, retention of urine is due to a paralysis of the bladder. Usually, in fact, the urethra is perfectly patent, and a rubber catheter is easily passed into the bladder, the urine flowing without any jet. The partisans of urethral spasm base their theory on an absolutely contrary symptomatology, viz., a difficult catheterism and a full jet of urine. All these facts lead us to conclude that urethral spasm is present in some cases on account of positive signs present, while paralysis of the bladder gives rise to negative signs.

In 1878, Reliquet formulated the following aphorism: "Any irritation having for seat the prepuce, glans, meatus, the urethra and Cowper's glands will be the origin of a reflex, having for result a contraction of the posterior urethra with retention of urine. This spasm can also be produced by lesions in the neigh-

borhood (of the urethra), such as constipation, hemorrhoids, anal fissure, etc. All diseases producing an irritation in the surface of the kidney, or in the continuity of the ureters and walls of the bladder or in the posterior urethra from the neck of the bulb to that of the bladder, or in the glands of this region, such as the prostate, the ejaculatory canals and seminal vesicles, provoke a spasm of the bladder and the urethra."

Traumatisms of the genito-pelvic regions are, consequently, to be considered as giving rise to a reflex action which has as ultimate result, the occlusion of the urinary tract and retention of urine. But in this paper we have more particularly in mind those traumatisms affecting what we may term an "indifferent zone," and in such cases we can admit *a reflex paralysis of the bladder*, the resulting retention usually giving away to simple catheterism.

This reflex is more apt to occur in the bladder than in any other organ on account of the well known susceptibility to all nervous influences inherent to the urinary system. We might also recall post-operative paresis of the intestine, which often coexists with retention of urine, as they are without doubt analogous phenomena.

The theory of paralysis seems applicable to the condition observed in subjects who have sustained a severe traumatism, namely, shock, and although it may manifest itself by phenomena of excitement, still, in the large majority of cases, symptoms of depression predominate. A true anuria is also occasionally met with, which must not be mistaken for a simple retention. I believe that we may have both spasm of the urethra and paralysis of the bladder as causes of retention, following operations or traumatisms, and that they are both due to a single cause which is to be sought for in the reflex action of the nervous centers.

Near the end of the spinal cord, above the genito-spinal center, there is a reflex center of the movement of the bladder, seated at the level of the fourth lumbar vertebra. The clinical studies of Vulpian demonstrated that in man this center is in the medullary portion, immediately below the twelfth dorsal vertebra, at the exit of the third and fourth sacral nerves. This

center directs the reflex contractions of the body of the bladder and not those of the neck of the organ. Kupressow's center, which controls the sphincters, is situated in the cord a little below Budge's vesico-spinal center.

Budge's center is in relation to the bladder by the intermediary of both sensitive and motor nerves and cerebral cortex. The sensitive nerves are of two orders, viz., *spinal*, in the posterior roots of the four sacral nerves, *sympathetic*, in the hypogastric nerves.

The motor nerves of the bladder and sphincter are also both spinal and sympathetic and have intimate connections, not only with the genito-urinary system, but with other pelvic and abdominal organs as well, and from this fact we may be able to explain certain reflex phenomena, the starting point of which is at some point of the plexus, and which terminates in some other point of the urinary system. It also demonstrates why certain irritations act on the bladder, giving rise to spasmodic symptoms, the cause of which cannot be found in the urinary reservoir itself.

A number of ganglions are scattered along the course of the nerves in the bladder walls, and probably they play an important part in the physiology of the organ.

Experiments show that a simple section of the hypogastric nerves (sympathetic) has no action on micturition or sensibility of the bladder and produces no trophic or vaso-motor disturbances. Section of the medullary hypogastric nerves, on the contrary, is followed by a retention, followed by an incomplete re-establishment of the function. The bladder becomes distended, loses its motility and sensibility, while vascular and trophic disturbances favor the occurrence of inflammatory reaction. Section of both sets of nerves causes the same series of accidents as in section of the medullary hypogastric nerves with this difference, that the function of the sphincters is intact.

From this we may conclude that the nerves of the sphincters are distinct from those of the bladder, since they do not form part of the hypogastric plexus. The bladder being under the control of both the spinal and sympathetic systems, the latter only act by intermediary of the former or even, perhaps, by the

proper action of the ganglions in the bladder walls. Simple section of the sympathetic gives only negative results and, consequently, an irritation of the peripheral end should diminish or entirely suppress the functions of the organ. The sympathetic system takes part in the inhibitory action exercised over the bladder by traumatisms, but it is difficult to say by what process. We might, however, suppose that there is a paralytic dilatation of the vessels resulting in a congestion of the organ.

Sharp impulses starting from a given point of the economy may produce contractions of the bladder. Irritative processes arising in the anterior urethra, the glans or perineum, cause the sphincters to contract. Thus we have a contracted bladder with a relaxed sphincter and *vice versa*, and, consequently, it is probable that we have spasm and paralysis of the bladder present at the same time in the same subject, both conditions being favorable to one another.

Bachefontaine believes that the cerebral center is also a reflex center for the movements of the bladder, which is thus under the control of three distinct nerve circuits, all of which terminate in the vesico-spinal center, viz., a medullary reflex arch, properly speaking, a sympathetic reflex arch, tributary to the former; and a reflex arch of the optic layer, whose centrifugal and centripetal fibers become intermingled with the first two arches. Thus the inhibitory action of a traumatism acting on the bladder is combined, the complex nature of its innervation helping to explain its great susceptibility to the impressions coming from without.

Retention of the urine after traumatism or operation may appear at any time, but usually it occurs immediately after, and when the patient has been placed in bed micturition becomes impossible. Sometimes retention does not occur until two or three days after the operation, and then it is apt to be longer in duration and complications are frequent, according to Lucas-Championnière. Cases are recorded where retention did not take place until the sixth or even the thirteenth day after operation.

There are two clinical types of retention of urine which may be termed indolent and painful (Boursier). The first has nothing special in its manner of appearing, and occurs in patients having no pathologic antecedent in the genito-urinary organs.

Retention comes on insidiously, immediately after the traumatic shock. The patient does not suffer, but only complains of a feeling of fullness in the lower abdomen, and in spite of great efforts the urine cannot be voided. The bladder distends and can be palpated above the pubis, while pain only appears later and progressively. In such a case the retention will disappear within a few days if the bladder is emptied regularly with the catheter.

The painful type of retention is somewhat more complicated, and begins with severe pain with slight remissions, but which is rarely if ever absent. There is a very marked vesical tenesmus, a feeling of weight in the perineum and a burning sensation in the urethra and neighboring parts. The cystalgia increases as the distension of the bladder becomes more pronounced, which is in itself a cause of reflex congestion. After a few days of complete retention the patient is able to pass his urine voluntarily, but occasionally the cure is only relative, as the patient only partially empties the bladder, whose contractility becomes weaker and weaker. The patient, in other words, urinates by overflow, and this condition is the principal cause of future complications.

The pain, on the other hand, does not disappear as quickly as the cause which produced it, and is awakened every time the catheter is passed, while in some cases the urine withdrawn is thick and loaded with pus, indicating the presence of a cystitis. When such is the condition of affairs the retention does not disappear as readily by catheterism and has a tendency to hang on or to recur after having disappeared. Such examples are met with in subjects having a pathologic process in the urethra or bladder or in cases of enlargement of the prostate, which at times is only slight, but is nevertheless a lesion of real importance.

It is evident that in practice we often meet with cases varying from the two types above described; a painful form of retention of urine does not necessarily mean that there is a pathologic change in the bladder walls, while, on the other hand, a retention may be quite indolent in subjects having lesions of the genito-urinary system. But what is to be remembered is that reten-

tion attended by much pain should lead us to suspect a complication and thus be active in our treatment and reserved in our prognosis.

Retention may pass off after one catheterization, but it generally lasts for at least three days or more, and cases are also recorded where retention followed an incontinence of urine. In other subjects retention comes and goes, presenting a real intermittence. Relapses of this kind are not serious, as a cure will at last occur, it only being delayed by the recurrences of retention.

The complications that may arise are caused by the passage of the catheter when asepsis is not carefully carried out. Post-operative or post-traumatic retention of the urine is not a serious affair, but when present it requires the attention of the surgeon, and the prognosis is good excepting when the patient presents pathologic changes in the genito-urinary organs.

The diagnosis is, in most cases, a simple matter, but some subjects having an irritable bladder cannot tolerate the presence of even a small amount of urine in the organ; they continually urinate drop by drop, and this condition may be mistaken for a chronically distended bladder. We must also differentiate retention from post-operative anuria, which is due to a number of causes, among which may be mentioned a temporary reflex abolition of certain secretory functions, the small amount of fluid taken into the system on the day of the operation, vomiting, and also the fact that the bladder is emptied before operating.

During the first twelve hours following an operation the bladder only contains a small amount of urine, but in practice I think we may say that a patient who cannot pass his urine voluntarily at the end of twelve hours has a retention, whether he has a desire to void it or not. The recumbent position tends to produce a distention of the bladder and retention of the urine, and it has been my practice for some time to place the patient in a sitting position as soon after the operation as possible, when the nature of the case will admit.

After trying to get the patient to urinate by allowing him to move in bed a little, if the desired result is not attained, a tepid

water enema may be *given slowly*, which may result in a movement of the bowels, and micturition as well. Hot applications to the pubis are also of use. But if the pain is severe, a belladonna suppository combined with some antispasmodic should be given, and if all these milder measures fail we must resort to catheterism.

A rubber catheter is to be preferred, but, as often happens in elderly people, if the catheter hits against the cul-de-sac of the bulb a stiffer instrument with an olive end should be used.

When the instrument enters the bladder, its contents should be drawn off slowly, and it is better to leave a little urine in the bladder the first time. The urine should be drawn off at regular intervals until it is passed voluntarily, and during the time that the catheter is in use I think it well to give a powder containing urotropin, benzoate of soda and bicarbonate of soda, dissolved in a glass of water, several times daily.

Should any complications arise they must be treated according to general principles.

871 Beacon St.

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NORMAL URINE IN A PATIENT WITH A RIGHT PYONEPHROSIS

By G. W. WARREN, M.D., New York

CASE seen at Lincoln Hospital in consultation with Dr. Erdmann. The patient, a Pole, aged 41, was admitted with a temperature of 103° and complaining of a cough, pain in chest, and weakness. Was well up to four weeks previous to admission, when he was taken with a cough and pain in his chest. Two weeks later had a severe pain in right hypochondriac and epigastric regions. Had marked constipation, at this time going three to four days without an evacuation. He complained of chills and fever.

The past and family history could not be gotten.

*Presented to the New York Urological Society, October 5, 1910.

Physical examination: Heart normal. Right lung normal, except for diminished respiratory murmur at base posteriorly. Left lung, diminished percussion note anteriorly and posteriorly; local fremitus and resonance increased over whole lung; crep-
itant and subcrepitant râle heard over entire lung. There was slight fulness over right hypochondriac and epigastric regions; extreme tenderness over lower edge of liver and epigastrium; slight rigidity of recti muscles, more marked on right side. A fluctuating mass could be felt occupying the kidney region, over which could be elicited colon tympany upon percussion. The lower part of abdomen was normal. -

Blood count, R. B. C.	3.300000
Lecocytes	6000
Polymorph.	427
Hemoglob.	55%

Sputum tubercu. bacilli were found. The urine upon admission and up to time of operation was normal in amount and upon examination

Spr. gr. 1020, acid; clear, no albumin; no sugar; no pus; few epithelial cells.

I saw the patient upon the sixth or seventh day after admission.

The urine had been examined on the second, fifth and seventh days, respectively, and at all times was normal.

Cystoscopic examination: Bladder wall normal; no areas of congestion; both uretal orifices appeared normal. Catheter passed freely the length of the left ureter and secretion from this side was free, and urine normal. The catheter passed up the right ureter for about 6 centimeters, where it stuck. Several attempts to pass this point were made. No secretion was obtained from the catheter, although its lumen was known to be free.

A diagnosis of strictured ureter was made, and as the patient was running a septic temperature varying from 104.5 to normal, a pyonephrosis with pressure necrosis was thought to be the most probable condition. He was operated upon on the eighth day.

The report forwarded to me was:

A large, much diseased right kidney, consisting of a shell of kidney substance filled with pus. The walls of the cavity lined with tubercles.

Review of Current Urologic Literature

FOLIA UROLOGICA

OCTOBER, 1910

1. Variations in the Character of Cystic Kidneys, and Their Operative Treatment. By Prof. Pousson.
2. Clinical and Experimental Researches on the Functions of the Kidneys after Nephrectomy. By L. Dominici.

1. CYSTIC KIDNEYS.—Prof. Pousson says that there is no good basis for the timidity which has prevailed regarding the outcome of operations upon polycystic kidneys. This fear was based upon the fact that this affection is very frequently bilateral. Pousson points out that the frequency of bilateral cystic degeneration is dependent upon the fact that the disease is discovered usually at an advanced stage. At the start the affection is quite often unilateral, or at least is largely confined to one kidney. A variety of theories are held regarding the origin of cystic kidneys, but of all these the connection between the development of conglomerated cysts and of nephritis seems to be the most plausible hypothesis. This is supported by the fact that in most patients the history and clinical development of the affection corresponds to that of nephritis, while postmortem nephritic lesions are found. The present author, however, does not believe that the cysts are formed by the dilatation of urinary tubules, but are the result of irritation of the renal epithelium. Other cystic lesions of the liver, spleen, etc., are often found in the same patients. A variety of diseases may lead to this condition of sclerosis of various organs, accompanied by the formation of cysts, for example, lead poisoning, rheumatism, gout, and various infections. The author maintains that cystic degeneration of the kidney is not a separate disease, but

that a variety of kidney affections may produce the conditions which terminate in cyst formation. This view opens a broader field for operative intervention. The author reports forty-three operations upon polycystic kidneys. Of these, thirty-eight were nephrectomies, with nine deaths, three of which had resulted from the insufficiency of the remaining kidney; four nephrotomies were recorded, with two deaths, and one decapsulation with a fatal outcome. Fourteen patients who were observed for a long time lived a number of years after the operations. As regards the choice of operation, Pousson points out that in the neoplastic form of cystic kidney operation should not be undertaken, so long as there are no complications. The function of the other kidney must be sufficient. In other cases in which there is pain, hematuria, anuria, etc., nephrotomy or decapsulation may be used. If the kidney is inflamed, or the seat of stone or of hydronephrosis, conservative methods such as decapsulation or nephrotomy are to be preferred.

2. THE FUNCTION OF THE KIDNEY AFTER NEPHRECTOMY.—Dominici examined the functional ability of the kidneys after nephrectomy. During the first day after the operation, the remaining kidney increases in functional capacity, but does not quite reach the point where it takes up the entire work of both kidneys. It may be said that the remaining kidney is equivalent to about two-thirds of the two kidneys in function. During the next few days the functional capacity of the remaining kidney increases, with some variations, until it reaches or surpasses the functional sum of both kidneys. This is observed in man on the seventh or eighth day, in animals on the fourth or fifth day, and the condition is maintained for a month or two after nephrectomy. Upon examining patients in whom nephrectomy had been performed a long time since, the author found that the urine excreted by the remaining kidney had all the characteristics of normal urine, no matter what the affection had been for which the nephrectomy had been performed. It is frequently found, however, that the urine is increased in quantity and contains a greater amount of solids than normal urine under these conditions. The author has never been able to find the great variations in renal functions which some authors report in cases examined after nephrectomy. The author points out that the increased work thrown upon the remaining kidney maintains an irritation which acts as a stimulant for so-called compensatory hypertrophy.

1. Some Concretions of the Lower Urinary Tract. By C. Adrian.
2. On the Technique of Ureter Transplantation into the Rectum. By S. R. Mirotworzeff.
3. The Trabeculated Bladder as an Early Symptom of Tabes. By R. Frohnstein.
4. Sterile and Dry Catheters. By Dr. Dreuw.
5. The Occurrence of Urinary Stones in Finland. By G. Renvall.

1. STONES IN THE LOWER PART OF THE URINARY TRACT.—Adrian reports two cases of urethral stone and one of vesical stone of peculiar shape. The first urethral stone was noteworthy on account of its three distinct layers. There was a central portion consisting of sodium urate, which evidently came from the kidney. Around this was a spherical deposit also of sodium urate, but of a much lighter color, which had been acquired during the stone's residence in the bladder. Finally there was a urethral layer formed of phosphates, whitish-grey in color and spindle-shaped. The stone had evidently remained in the bulb for some time. It was extracted after dilatation of the distal part of the urethra by means of a four-branched dilator.

In the second case the stone had a peculiar elongated shape, slightly bent, with an enlargement at one end, shaped like the head of a tape-worm. It was five c.m. in length. The probability was that the stone had remained in the urethra for a long time, or possibly had developed originally in the urethra. The nucleus of this stone resembled a piece of bony sequestrum in structure and the author hints that a caries of the pelvis which was discovered in this case may have had something to do with the formation of the stone.

In the third case the stone was mushroom shaped, and was found in the bladder. It was about the size of a walnut and from its center a stem-like projection emerged, which gave it the appearance of a mushroom. The narrow portion was whitish, while the body of the stone was yellow. It is probable that the stone had been imbedded in a small diverticulum of the bladder, in which the stem of the mushroom had been lodged.

2. IMPLANTATION OF THE URETER INTO THE RECTUM.—Mirotworzeff describes a modification in the technique of implanting the ureter into the rectum which he recommends as giving satisfactory results. The patient is first put in the Trendelenburg position and a suprapubic incision

is made, through which ureters are explored. These canals are severed in turn between two ligatures, of which the distal should be as near the bladder as possible. The proximal stump of the ureter is then isolated for a distance of from five to six centimeters, and is then applied to the lateral wall of the pelvic colon, in the same manner as a catheter is applied in Witzel's gastrostomy. The ureter is then buried in a fold in the wall of the intestine by means of five or six sutures which include the adventitia of the ureter. The free end of the ureter, which had been ligated, is allowed to project from the buried portion, and slight traction is made upon the ligature during the application of the sutures. Opposite the free end of the ureter, as it lies sutured in place over the intestine, a small incision is made in the gut. The ligature in the ureter stump is now removed, or the ligated and constricted portion is cut off, and the lumen of the ureter is laid open. The edges of this lumen are now sutured like a cap over the opening in the intestinal wall by means of a few muco-mucous sutures, over which a row of Lembert sutures are placed. The anastomosis is thus securely made. The second ureter should be implanted a little above or below the position of the first. This operation was tried at first upon dogs, and then, in six cases, in human beings. In four of these cases there was cancer of the urethra or bladder; in two there were congenital malformations. In the six cases there was one death from pulmonary edema. The operation has prolonged life and relieved distressing symptoms in the cases of cancer.

4. STERILE AND DRY CATHETERS.—Dreuw finds it necessary to preserve catheters in the dry state after they have been sterilized. The usual method of boiling the catheters and keeping them afterwards with the moisture still adherent, is destructive of the material from which they are made. Dreuw recommends a sterilizer which enables one to render the catheters aseptic by means of streaming steam and dries them afterwards. The catheters are hung vertically in the sterilizer from a suitably perforated plate, and the change from steam to dry heat is made by a simple contrivance. The apparatus is especially recommended for dispensary and office work. It takes from fifteen to twenty minutes to sterilize the catheters and from five to ten minutes later the catheters may be removed perfectly dry. The apparatus is made by Loewenstein, of Berlin.

5. URINARY CALCULI IN FINLAND.—Renvall presents a statistical study of the question of the frequency of urinary calculi in Finland. It is well known that each country has its own special frequency for urinary calculi. In some countries calculi are common in certain regions. Urinary calculi are said to be rare in Sweden, Norway and Denmark. In

Finland Estlander noted the rarity of urinary calculi as early as 1876. The author examined the records of the surgical clinic of Helsingfors for the past three years, and also collected statistics from other parts of Finland. According to the annual report of the controller of medical institutions from 1885 to 1908, there were 181 cases of stone treated in the Finnish hospitals during that period. Of these, 120 patients with a clinical diagnosis of stone, were admitted to the Helsingfors Clinic. In these 120 cases 93 were found to have actual calculi at the time. The population of Finland in 1880 was about 2,000,000; while in 1907 it had reached about 3,000,000. The small number of urinary calculi which occurred in Finland during a period of about thirty years is remarkable. An interesting point was that 75% of the cases occurred in men, and the remainder in women, a very high percentage, therefore, in the female for Finland, as contrasted with the average percentage (5%) usually recognized for the occurrence of stone in women. As regards the chemical composition of the stones, an analysis of 63 cases showed that, as compared to other countries, uric acid and calcic oxalate stones were both comparatively and absolutely rare in Finland. While the countries in which stone in the urinary tract is common show a large percentage of uric acid and oxalic calculi in young people, and while in these countries even older people are more frequently affected with uric acid calculi, the author found that in Finland only one case out of 63 showed a uric acid nucleus in a person under twenty, the remaining patients with uric acid calculi being much older. Furthermore, there was not a single woman with uric acid stone, and only one of the twelve patients with such stones was engaged in physical labor, the remainder belonging to the educated classes. The Finns are therefore extremely resistant to the formation of uric acid calculi.

ZEITSCHRIFT FÜR UROLOGIE

Vol. 4, No. 9

1. A Study of the Connective Tissue Stroma of the Kidney. By Rudolph Kolster.
2. Operations for Diffuse Cancer of the Penis. By B. N. Cholzoff.
3. The Clinical and Diagnostic Value of Determinations of Urease. By Friedrich Simon and Ernst Meyer.
4. The Trabeculated Bladder as an Early Symptom in Tabes. By Fritz Boehme.

1. STUDIES UPON THE STROMA OF THE KIDNEYS.—Kolster studied the question as to whether a basal membrane actually exists around the urinary tubules. The existence of this membrane was asserted in 1842 by Bowman, who called it *membrana propria*. At first it was supposed that this *membrana propria* was a separate structure, but more recent researches have cast some doubt upon this subject. In 1891, Mall published a study upon the stroma of various organs, including the kidneys. In the kidney, Mall found finely fibrillated layers which formed a *membrana propria*. The technique employed by Mall, however, was not sufficiently fine to distinguish all the details of the structures under discussion. The present author employed the method of Bielschowsky, by means of which he was able to prepare excellent sections and stained specimens of glomerular tissue. He found that it was impossible to demonstrate the presence of a structureless membrane, surrounding the urinary canal, but that the envelope of these canals was constituted by a matting together of more or less regularly arranged fibrillæ. There fibrillæ were closely adherent to the stroma, in fact there was gradual transition of the fibrillar envelope of the canal into the stroma. Upon digesting the loose cellular tissue with pancreatin solution, during varying periods of time, it was found that there was no regular limiting amorphous membrane around the tubules. In general, the author's conclusions correspond with those of Mall, Rühle, and Disse.

2. VALUE OF TESTS FOR UREASE IN CLINICAL DIAGNOSIS.—Simon and Meyer discuss the question of the value of urease tests in the diagnosis of cystitis, pyuria, etc. The presence of urease indicates the presence of a urea-splitting ferment; in other words, the greater or lesser tendency of the urine to undergo spontaneous ammoniacal fermentation. As yet, the method and its clinical value are not sufficiently applied in practice to make them of positive value in quantitative comparisons of the effects of urinary antiseptics, etc.

The determination of the quantity of ammonia eliminated in a freshly voided urine is of no value, because we have always to deal with the unknown quantity of pre-formed ammonia. In order to determine the quantity of ammonia actually formed in the bladder, and thus to find out the degree of fermentation in that organ, it is necessary to employ a method which permits us to measure quantitatively the cause of ammoniacal decomposition of urea; in other words, such a method as the determination of the urea-splitting ferment, urease. Until the middle of the past century, it was believed that the ammoniacal fermentation of the urine was due to a dead substance derived from the decomposition of

proteids. Urease is derived from the metabolism of various bacteria. It cannot be separated from the bodies of bacteria by filtration, but can be isolated by treating bacterial masses with alcohol. Urease is a hydrolytic ferment, which splits urea into carbon dioxide and ammonia.

The determination of urease is based upon the principle that a measured amount of urine can be precipitated with alcohol, and the precipitate washed with alcohol, will contain all the urease that was contained in the urine. The precipitate in alcoholic suspension is mixed with a two per cent. watery solution of urea, and the mixture is digested at body temperature in a thermostat for fourteen hours. The fermentation process is then interrupted by the addition of decinormal hydrochloric acid, up to a slightly acid reaction. Then, the ammonia contained in the mixture is determined according to one of the standard methods. If it is impossible to make the tests at once, the urine should be kept on ice to prevent possible fermentation.

ZEITSCHRIFT FÜR GYNÄKOLOGISCHE UROLOGIE

Vol. II, No. 4, October, 1910

1. The Operative Treatment of Congenital Incontinence (With Three Illustrations). By Rudolph Goebell.
2. Failures in Plastic Operations upon the Urethra and the Bladder, Resulting from Self Injury by the Patients. By W. Stoeckel.
3. Para-urethral Abscess Cured by Injection of Leukofermantin. By Walter Hannes.
4. An Anomaly of the Urinary Tract Diagnosed with the Aid of the Cystoscope. By E. Holzbach.
5. Experimental Studies on the Action of Momburg's Rubber Ligature upon the Kidneys. By A. Mayer.
6. Pregnancy after Nephrectomy and Its Effect upon the Remaining Kidney. By Franz Hornstein.

I. OPERATION FOR CONGENITAL INCONTINENCE.—Goebell reports the case of a girl four years old, who came to him in 1908, on account of epispadias and incontinence of urine. He performed a plastic operation, dissected out the split vesical sphincter, sutured this muscle, and tried to secure continence by slightly twisting the sutured urethra. The plastic operation was a success, but the child did not become continent. In February, 1909, a second operation was performed. A transverse incision two centimeters above the symphysis was made through skin and

fascia. The latter was dissected upward and detached from the linea alba in the median line. The pyramidal muscles were carefully spread, while the recti were separated by blunt dissection. The pyramidi, which were well developed, were detached laterally from the recti, and were turned downwards without injuring the nerves and arteries supplying them. Then the two recti were separated with retractors, the bladder which had been filled with boric acid was exposed, the peritoneal fold drawn downward, and the neck of the bladder explored and freed from adhesions. Then, in order to save the neck of the bladder and the vagina from injury, a catheter was introduced into the bladder and an artery forceps into the vagina. By spreading the blades of the forceps, it was easy to separate the vagina from the neck of the bladder without injuring either duct. When this dissection had been made, the pyramidal muscles were separated, and their ends were drawn downward under the neck of the bladder. Here they were sutured together with the aid of a cleft-palate needle in such a manner that the suture lay between the vesical neck and the vagina. Next, the pyramidal muscles were sutured above the bladder neck with two silk sutures, so that the vesical neck was surrounded by the ring formed by the fibres of the pyramidal muscles. A permanent catheter was left in the bladder and the abdominal wound was sutured, leaving a small drain. The after-treatment consisted of bladder irrigation and urotropin internally. The patient made a good recovery and a good result was secured functionally. There is never any incontinence in the waking condition, but occasionally at night. The success, therefore, is not ideal, but there is a great improvement compared to the previous condition.

3. PARA-URETHRAL ABSCESS TREATED WITH LEUKOFERMANTIN.—Hannes reports a case of para-urethral abscess in a woman aged thirty-one, in which a great relief was obtained by the injection of leukofermantin. This is an antiferment serum, which is said to combat the destructive ferment of the pus cells or leucocytes. The anti-ferment is present in normal blood serum, as well as in ascitic fluid, but can be obtained in larger quantities in the serum of horses. It is from this that the preparation known as leukofermantin is made. The usual treatment of para-urethral abscesses is by incision over the prominent part of the swelling through the vagina. In the present case the tumor was easily felt in the anterior vaginal wall; there was no remarkably abundant secretion of pus from the urethra, but gonococci were discovered in what secretion could be collected. The tumor was aspirated through the vagina and a quantity of pus was evacuated. Into the abscess cavity leukofermantin was injected until the swelling had become

quite tense once more. The pus contained streptococci. On the following day the fever disappeared and in three days the tumor in the urethra could no longer be felt. After the gonorrhea had been cured, the patient was discharged.

5. EFFECT OF MOMBURG'S LIGATURE ON THE KIDNEYS.—Mayer investigated the question as to the effect upon the kidneys of constricting the abdomen forcibly by means of Momburg's rubber ligature, as is done by some surgeons. The work was done in animals (rabbits) and the author does not say positively whether the conclusions arrived at apply to human beings. He found, however, that in rabbits Momburg's ligature can temporarily exclude the kidneys from the circulation. This produces lesions in the kidneys which can be demonstrated microscopically and functionally. In man, there seems to be a possibility of a damage to at least one kidney in the use of Momburg's method. The other kidney may also suffer, owing to the fact that compression of one renal vein affects the opposite organ. This is especially apt to occur when the kidneys are partly diseased. It is difficult to say to what degree Momburg's method interferes with the excretion of narcotics which have been injected into the spinal cavity. The author closes with the recommendation that in every case in which Momburg's method of constriction has been used a careful and complete examination of the urine should be made daily for several days after the operation.

ANNALES DES MALADIES VÉNÉRIENNES

October, 1910

1. The Evolution of a Question. By Dr. Jullien.
2. Note on the Pharmacology of "606." By Dr. Eméry and C. Pépin.
3. Results Obtained in Several Cases of Syphilis Treated with Ehrlich-Hata "606." By A. Bertarelli, A. Pasini, and C. Bottelli.
4. The History of a Specific against Syphilis. By Dr. Payenneville.

I. CAN SYPHILIS BE ABORTED?—Jullien discusses this theme in an article entitled "The Evolution of A Question." Of late this topic has been coming to the front to a greater degree than ever. The principle is no longer in dispute, but the means for attaining the end are not settled. The present author has studied this question for thirty years and reviews some of the failures which he has encountered during that period. His ideal has always been to throttle the infection as soon as it

was discovered. He was regarded as a man of Utopian ideas, however, for the minds of the profession were not ready to accept the scheme as feasible. When a case was reported in which the infection seemed to have been aborted, it was claimed that there had been an error in diagnosis. If it was admitted that the diagnosis was correct, the critics said one could not be sure that the disease would not crop out later on. Notwithstanding these discouraging views, the author has always tried to abort syphilis in its incipient stage whenever he could. The first method which appealed to him as full of hope was the excision of the chancre. His results have been variable, for in some cases apparent victory was followed by unexplained defeat. The next step was the adoption of a combination of excision of the chancre with forced mercurial treatment. With this method success was more frequent and more complete. During the past few years the author has excised chancres less frequently, but has made it a practice to keep the sore in contact constantly with mercurial ointment. The surface of the ulcer is first scraped clean with a curette and the ointment is thoroughly applied, with friction, morning and evening. In addition, injections of calomel in doses of 0.05 cgm. are given every five days for three months; then with increasing intervals, reaching thirty days at the end of a year.

The question as to how long treatment should be continued may be prudently answered: Several years; if necessary, ten years. Some patients, however, do not tolerate mercury in large doses. Intensive mercurial treatment should not be prescribed for patients without a good set of teeth; nor should it be used in persons with renal or hepatic insufficiency, or in old people over seventy, who do not bear calomel injections well. The method of injections with calomel is severe and requires much patience, but is of inestimable value.

2. TECHNIQUE OF PREPARING SOLUTIONS OF "606."—Eméry and Pépin improved the method of preparing solution of Ehrlich's "606" by modifying the method of Herxheimer and devising a more accurate mode of neutralising the solution. The authors noted that the great pain, produced by the injections of the new remedy, was due to a large extent to the alkalinity of the suspension. None of the methods previously described, such as those of Wechselsmann, Michaelis, Lesser, Blaschko, etc., include a sufficiently delicate neutralisation of the caustic soda solution required in these preparations. The authors employ a porcelain plate, containing concavities, like those of a palette. Upon this plate a drop of a solution of phenolphthalein and a drop of the solution to be tested are placed in one of the hollows. The slightest degree of

alkalinity is manifested by a tinge varying from violet to very pale pink. The feeble alkalinity desired by some of the investigators was indicated by a very pale pink color. The method of Wechsellmann requires too elaborate apparatus, and upon experimenting, the authors rejected the methods of Michaelis and of Lesser. They believe that the precipitation of the base, its re-solution in an excess of alkali, and its re-precipitation by the saturation of this excess, involves too much time and trouble in manipulation. Moreover, the suspension almost inevitably contains coagula, which obstruct the needle. Finally, the necessity of employing 20 c. c. of fluid for each injection for suspending such a small amount of solid material seems deplorable from the point of view of the painfulness of the injection.

The ideal method, according to the authors, is one which employs exactly the theoretical quantity of NaOH. For this purpose they have constructed a special burette, consisting of a graduated tube, holding about 5 c.c., and divided into twentieths of a cubic centimeter. A stop-cock allows accurate regulation of the flow to a twentieth of a cubic centimeter. In this burette they employ normal soda solution, containing forty grams of NaOH per liter. To show how inaccurate is the use of a twenty per cent. solution of NaOH, used by Blaschko for instance, the authors point out that one drop of this solution contains six times the amount of NaOH that is contained in the normal solution. With the aid of the burette and the normal solution, the authors were able to add to the powdered remedy a quantity of sodium hydrate, exactly equivalent to the two molecules of hydrochloric acid contained in the Ehrlich compound. To test the result they employed again the method of contact with phenolphthalein, as previously described. If a faint pink color was obtained, the result was satisfactory; if the color was too deep, a drop or two of dilute hydrochloric acid (1:20) was added. In all, the volume of the injection did not exceed from seven to eight cubic centimeters, including the last drop of water employed for rinsing the mortar. The following is a summary of the method of preparation:

1. The ampoule of "606" should be opened with care to avoid irregular fracture and loss of the powder.
2. Empty the powder into the mortar and add a sufficient quantity of normal soda solution from the burette. For the usual dose of 0.60 gramme 2.80 c. c. of the normal sodium solution, or 56 divisions of the burette, are necessary. This calculation is based upon the fact that one gram of "606" requires 0.1822 gramme of NaOH to neutralise its acid. The mixture is then to be carefully triturated.

3. The alkalinity of the mixture is to be tested with phenolphthalein, as described; and if the color is too deep, some HCl solution should be added, while if the color is not even a pale pink, some more soda solution should be added.
4. The suspension thus obtained is taken up in a graduated glass syringe, and the mortar and pestle are washed with a sufficient quantity of hot sterile water to make from seven to eight c. c. The resulting solution has been much less painful than those recommended by other authors. Usually there is no pain whatever until the third day, when there is slight pain or only a feeling of numbness and of burning. In many cases the pain is felt only upon palpation. There were no local inflammatory symptoms.

4. HISTORY OF AN OLD SPECIFIC.—Payenneville, in this issue, contributes the closing chapter of a history of the so-called "Rob Laffecteur," which was widely advertised as a marvelous remedy for syphilis. This "Rob," or syrup, was a preparation containing a number of vegetable substances, and also incidentally the great anti-syphilitic, mercury. The proprietor of this remedy grew rich and famous, and even acquired a title of nobility. The first advertisements of this great nostrum were published in 1778, and in a modified form the preparation is still to be had, although it has passed into other hands.

ANNALES DES MALADIES DES ORGANES GÉNITO-URINAIRES

Vol. 28, II, No. 20, October, 1910

1. Three Cases of Horseshoe Kidney, with Considerations on Hydronephrosis in this Anomaly. By E. Papin and E. Christian.
2. Cancer of the Prostate. By H. H. Young. (*Concluded.*)

1. HORSESHOE KIDNEY AND HYDRONEPHROSIS.—Papin and Christian report three new cases of horseshoe kidney, in two of which there was hydronephrosis. This complication is quite frequent in kidneys of this type. In a previous article, written with Iglesias, one of the authors pointed out the frequency of accessory renal vessels in horseshoe kidneys. In one of the cases reported, the hydronephrosis was bilateral, involving both pelves. In the other case it was unilateral. The pathogenesis of hydronephrosis in this anomaly is interesting. The theory has been that there is an obstruction to the flow of urine at the isthmus between the kidneys upon which the ureter is reflected. This leads to retention. This

theory, however, is not correct. In horseshoe kidney the ureter passes in front of the kidney, the conditions being such that it seems as if the kidneys had been turned around and changed sides, so that their anterior surfaces had become posterior. The ureters descend over the anterior surface, following the position of the hylus, which also comes forward. Only in one case in the literature, in that reported by Landouzy, did the ureters pass behind a horseshoe kidney. The explanation for the hydronephrosis in these cases must be based upon a congenital malformation, without evident cause. It is very difficult to recognize horseshoe kidney in the living. This has been done, however, in several cases, by Israel and others. There are, in all, nine cases in which the hydronephrosis in a horseshoe kidney required operation. In one case an attempt at nephrectomy was made through an error in diagnosis, and the patient died of hemorrhage from a tear in one of the large vessels. This case was operated upon in 1881 by the abdominal route, for the lumbar methods were then as yet undeveloped. The abdominal route is the one that leads to the greatest error in the operative work upon horseshoe kidneys. In six of the nine cases, heminephrectomy was performed, according to the technique so well worked out by Albarran. An angular incision is made through the segments of isthmus and the flaps thus formed are united with catgut tissue. Some authors use the thermo-cautery in dividing the horseshoe kidney, after placing a very strong clamp upon the isthmus.

RIVISTA UROLOGICA

October 15, 1910

1. Clinical Contributions to the Surgery of the Kidneys and the Ureters. II: Nephropexy. By Guido Lorenzani.
2. The Mechanical Theory of the Origin of Calculous Anuria. A Preliminary Note. By Dr. Musumeci-Grasso.
3. Conditions for Operation and Urinary Surgery. By F. Musumeci-Grasso.

1. NEPHROPEXY.—Lorenzani reports the results of sixty-six nephropexies upon sixty-one patients, with a mortality of two. His conclusion is that Biondi's method of decapsulation, which has been practiced in his clinic since 1897, is the simplest and least harmful, most rapid, and most efficient operation. Biondi adopted this method after having failed with the methods of several surgeons who had described their operations previously. The incision is made in Petit's triangle, between the posterior border of the great oblique and the latissimus dorsi muscles. The object

of this is to expose the kidney, without injuring any important vessels or nerves. In this location we have only to cut down upon the anterior margin of the quadratus lumborum muscle, the anterior and posterior layers of the aponeurosis of the transversalis, to reach the perirenal tissues. The kidney is then completely freed from its adipose envelope, and an incision is made over its convex border, the posterior surface being decapsulated. The kidney is then put in place, and fixed in its position by means of gauze packs. This is done by packing a long wide strip of gauze in front and underneath the kidney. At first, one end of the strip, folded in the form of a loop, is introduced around the lower pole of the kidney and is allowed to emerge through the upper part of the wound. Then the packing is continued upward, in a zigzag fashion, filling all the space underneath the kidney, and the other end of the strip is allowed to emerge from the lower end of the wound. The gauze is completely removed after fifteen days, by pulling upon the lower end. The decapsulated surface adheres to the wall by means of firm adhesions.

2. THE MECHANICAL THEORY OF CALCULOUS ANURIA.—Musumeci-Grasso defends the mechanical theory of calculous anuria against the opposition of those who are in favor of regarding such anuria as due to inhibitory effects upon the renal secretions. In his opinion, the mechanical theory, while not the only one which can be applied to the interpretation of calculous anuria, must always be considered, as a possibility, in addition to the inhibitory theory. Perhaps in some cases both mechanical obstruction and inhibition each play their part: The opponents of the mechanical theory have cited such facts as the absence of an accumulation of urine above the stone, the smallness of the stone in relation to the ureteral lumen, and the perfect functioning of the opposite kidney, as arguments against the conception that calculous anuria could be due to obstruction. These arguments, however, are not sufficient to disprove the possibility of anuria due to obstruction in cases of calculi. It is not necessary to find an accumulation of urine above the stone in order to be able to say that the anuria is mechanical. The smallness of the stone need not be considered as a proof against the mechanical theory, for the stone may have been lodged temporarily in the narrow places of the ureter, or may have been surrounded by congested or inflamed ureteral tissues. The functional integrity of the opposite kidney is not a proof of the absence of obstruction on the affected side. When the ureter on one side is suddenly blocked and the secretion of urine is obstructed, there is naturally an increased blood-pressure, which is reflected in a greater activity in the opposite kidney.

THE STAINING OF SPIROCHAETA PALLIDA IN THE LIVING STATE, BY MEIROFFSKY'S METHOD. L. Zweig. (*Medizinische Klinik*, May 22, 1910) recommends the following method of staining the spirochaeta pallida in the living state, a method which was originally introduced by Meiroffsky, at the spring meeting of the dermatologists of Rhenish Westphalia (April 17, 1910):

The lesions are first well cleaned with normal salt solution, then with a glass rod a paste is pressed upon the lesion which consists of methyl violet, mixed with a few drops of water. After this paste has remained over the lesion for a minute or two, the Bier's hyperemia cup is applied and the serum obtained is examined. A drop of this serum is mixed with a drop of distilled water upon a slide, covered with a cover glass and examined with an oil immersion lense. If the stain has been properly used the cellular elements are dark violet, except the red blood cells which are stained dark blue. The spirocheta is stained a pale blue, the other bacteria dark violet. The movements of the spirocheta may be easily watched. The advantage of this method is that it allows the detection of the spirocheta in cases in which this organism is present in smaller numbers than would be necessary in order to detect them with the india ink method. The new method shares with the Indian ink method the advantage over dark field illumination in that it does not require expensive apparatus.

THE ABORTIVE TREATMENT OF ACUTE GONORRHEA. Carle (*La Clinique*, March 25, 1910) says that the following are necessary for the successful abortive treatment of acute gonorrhea: First, a syringe holding 12 c. c.; second, a solution of protargol of 1%, and another of 2%; third, a solution of ichthyol, 1%.

At the very onset of the affection a protargol injection should be given twice a day, one of these being administered by the physician himself. The injection should be retained for about ten minutes. If the reaction is severe the strength should be increased gradually, from 1 to 2%. If the reaction be mild, the 2% solution can be used early, and increased on the sixth day to a 3% solution. These injections of protargol should be given at noon and in the evening. In the intervals, that is, at eight a. m. and six p. m., the patient may use an injection of 1% ichthyol, retaining it for two minutes. These injections are not to be used unless the pain, congestion, etc., following the injection of protargol, have disappeared. If this treatment has been started early enough, the frequency of the injections may be diminished on the tenth day, and the treatment may be left off on the fifteenth day. A little longer time is required if

the treatment has been begun later. The treatment should always be gradually discontinued, never suddenly. First, the ichthyol injections, then the noon injection of protargol, and finally the evening injection. Internal medication is not necessary, although some salol may be given.

SPERMATORRHEA AND IMPOTENCE DUE TO DISEASE OF THE PROSTATE.

—M. Porosz, of Budapest (*Berliner klinische Wochenschrift*, 1910, No. 4) remarks that, although our knowledge of the anatomy, physiology and pathology of the prostate has made great strides in the past ten years, many physicians still ignore the fact that disease of the prostate is often responsible for spermatorrhoea and impotence. We know that an acute, or a chronic prostatitis, is often followed by disturbances of the sexual function. These patients rapidly develop into neurasthenics. In all these cases there is a disturbance in the sexual mechanism. What this disturbance was, was not known until recently. The author claims that the vesicles as well as the bladder must have a sphincter. There is an analogy between the bladder and the vesicles, in that both serve as reservoirs for a secretion which is constantly manufactured, but is emptied only from time to time. The spermatic sphincter is not directly a structure belonging to the vesicles. It is a bundle of muscular fibre belonging to the prostate, which serves to close the ducts of the vesicles. It is this bundle of muscles which is responsible for all those functional disturbances which have for a long time been regarded as evidences of central nervous lesions. Pollutions are, therefore, the result of a weakness of the sphincter of the vesicles. Spermatorrhea is also the result of the same cause. In cases of atony of the sphincter the prostate is found soft, boggy, objectively atonic. In all these cases there is an anatomic cause for the neurasthenic symptoms and the latter are not primarily of nervous origin, as was supposed by many physicians.

THE PORGES REACTION IN SYPHILIS.—Louis Merian (*Medizinische Klinik*, No. 27, 1910, p. 1057) reports the results of his work with the Porges reaction in 131 cases. This method has not been tested extensively in comparison with the Wassermann method, although it is desirable on account of its simplicity. In the technique of the test, Merian followed exactly the directions given by Porges. The reagents required are: (1) A freshly prepared 1 per cent. solution of sodium glycocholate (Merck). The preparation must be kept cool and dry, and if decomposed is not trustworthy. (2) Inactivated serum from the patient (heated for half an hour to 56 degrees C.), which must be centrifuged and the clear liquid decanted, or pipetted. The serum is best taken

before a meal. (3) Sterile precipitation-tubes, five or six millimeters in diameter.

The test is made by mixing 0.2 to 0.3 c.c. of inactivated serum with the same amount of the solution of sodium glycochocolate. The serum must be examined as early as possible, for if allowed to stand for over eighteen or twenty hours the positive reaction often becomes negative. The tubes must be set aside in a protected place for from sixteen to twenty hours. Positive reactions are distinguished by finding suspended clumps in the fluid, which here and there float up to the surface in the form of larger islands. Negative reactions show either a complete clouding of the fluid, or very fine flocculi, which can only be distinguished with the aid of a magnifying glass.

As regards the results of the test in 131 cases, as compared to the Wassermann test, they were very satisfactory. The primary and secondary cases of syphilis showed both reactions in the same percentage of cases, with this difference, that in the primary stage the Porges reaction seems to appear earlier than that of Wassermann. The latent and tertiary cases did not react in the same percentage of cases as with the Wassermann. Cases of non-syphilitic affections were uniformly negative, save in a case of prurigo, in which a weak positive reaction was obtained in a young man of seventeen, who probably had hereditary syphilis. In sixteen cases in which the reactions were applied in the diagnosis of ulcers, etc., the Porges reaction showed a much larger number of positive results than the Wassermann test. In a number of these cases syphilitic symptoms occurred later. The author acknowledges that the Porges reaction, as well as the Wassermann, at times misleads as regards results in cases tested for diagnosis, yet it is of sufficient clinical value on account of its simplicity to merit more attention. It should be tested, however, upon a much larger material.

EXPERIENCE WITH DUNGERN'S METHOD OF SERUM DIAGNOSIS IN SYPHILIS.—Schultz-Zehden (*Medizinische Klinik*, No. 27, 1910, p. 1058) speaks of Dungern's method of blood-diagnosis in syphilis as of a practical test which any physician can make during office hours. The great value of the Wassermann reaction in the diagnosis of doubtful cases is undisputed. The value of the Wassermann test in therapeutics, however, is very much less marked. Thus, cases which had been treated with mercury for some years, and which had not shown any symptoms for a long time, continued to show positive Wassermann reaction in many instances. The Wassermann test cannot be made by a practising physician without elaborate equipments.

The method of von Dungern was suggested by that authority in February of the present year. Its principle is analogous to that of the Wassermann test. The following is the technique employed:

A tablet of sodium chloride, which is supplied with the outfit, is dissolved in 100 c.c. of ordinary tap water, thus making a normal salt solution. Of this solution 2.2 c.c. are poured into the vial marked "amboceptor." The amboceptor is a powder which is soluble upon shaking with the salt solution. The outfits for twenty reactions require 8.8 c.c. of salt solution for the solution of the amboceptor. The following reagents are then placed in two test tubes. Tube No. 1 is the active tube, while Tube No. 2 serves for control.

Into Tube No. 1, 0.05 c.c. of organ extract (guinea-pigs' heart) are poured by means of a pipette. The second tube is allowed to remain empty for the time being. Into the first tube are then poured 2 c.c. of salt solution, 2 complement papers, and 0.1 c.c. of the defibrinated blood of the patient. The same is done with the second tube, so that the latter contains everything that the first tube holds, save the organ extract.

The blood is obtained from the patient's ear or finger, about six drops being required. These are collected upon a well-cleaned and dried watch-glass, and the blood is defibrinated by beating it with a match stick, the fibrin adhering to the stick. After the blood has been added, the tubes are allowed to stand for an hour at room temperature and are frequently shaken. Thereupon, 0.2 c.c. of the amboceptor solution is added to each tube, and the mixture well shaken. If the reaction is negative, Tube No. 1 shows a clear solution, while if the reaction is positive the red-blood cells are agglutinated, but not dissolved. After about half an hour the red-cells settle without being dissolved. The control tube must show a clear hemolysis. It is best to observe the result within half an hour to an hour after the beginning of hemolysis in the control tube.

Von Dungern's method is a modification of Noguchi's. The method is quite applicable to general practice, as the author has found by a comparison with the results which he obtained with it in cases which were tested by other observers with the Wassermann reaction. (The outfits for this method are supplied by Merck.)

THE THERAPEUTIC ACTION OF THE SERUM OF PATIENTS AFTER TREATMENT WITH EHRLICH'S ARSENOBENZOL UPON THE SYMPTOMS OF HEREDITARY SYPHILIS IN A NURSING.—Meirowsky and Hartmann (*Medizinische Klinik*, October 2, 1910, p. 1572) report the following case, which is intended to illustrate the action upon hereditary syphilis

of the serum of patients who had been previously treated with Ehrlich's remedy. Taegge and Duhot announced that they have been able to produce favorable effects in hereditary syphilitic infants by the mere absorption of the milk of mothers who had been treated with arsenobenzol. This led the present authors to the idea that the serums of patients after treatment with Ehrlich's remedy may contain substances which act beneficially upon hereditary syphilis. On August 12, 1910, a woman with typical syphilitic lesions upon the genitals gave birth to an apparently healthy child. The infant developed syphilitic eruptions, and as the mother was unable to nurse him, the infant was given subcutaneous injections of the serum of patients who had received injections of Ehrlich's remedy from two to fourteen days previously. The infant received in all eight injections of serum, varying from 5 to 20 c.c. each. Two days after the first injection a remarkable improvement occurred. The soles of the feet, which had shown an eruption, cleared up completely. The palms of the hands showed marked improvement of the eruption and slight scaling. After the last injection, fourteen days after the beginning of the treatment, there was a great improvement in the skin lesions, but it was evident that the injections had not produced a complete cure. Probably this would have been possible with larger quantities of serum. Traces of arsenic were found in the serums of patients who had been treated with Ehrlich's remedy. It is probable that these serums also contained antibodies, just as the milk of nursing women, who had been treated with arsenobenzol, is said to contain substances antagonistic to the *Spirocheta pallida*.

EXPERIENCES WITH THE EHRLICH-HATA REMEDY IN THE TREATMENT OF SYPHILIS.—Oscar Salomon (*Medizinische Klinik*, October 16, 1910) employed the Ehrlich remedy in 31 cases of syphilis. Among these there was only one case which showed itself refractory to the treatment. The dose in all cases was 0.6 gramme, with slight variations. The method of injection was that of Wechselmann, at first, while later the modification introduced by Herxheimer was used. In the first fifteen cases the injections were given subcutaneously under the scapula. While the injection itself was not painful, it was followed by the formation of deep infiltrates and in four cases abscesses, which did not show any bacteria on culture. At times the skin showed gangrenous spots, under which the tissues were the seat of a gangrenous process, which may have been due to the action of alkalis, or of the formation of acids, or possibly it might have been due to pressure. The subcutaneous injections gave the least rapid therapeutic results, and the intramuscular in-

jections into the glutei were very much more effective and less troublesome. Infiltrates were rarely observed, and if the place was thoroughly massaged there was little pain. Constitutional disturbances were slight and transient. The author was even able to treat the cases in his office, without having them confined to bed.

Therapeutically the results were excellent. In one case there had been intense headache, vertigo, vomiting, etc., for two weeks. An injection was followed by the complete disappearance of symptoms within ten days. In another case of tertiary syphilis, with vertigo, the patient recovered three days after injection. Of six cases of primary lesions five disappeared within from eight to fourteen days. One case, however, resisted the treatment, but yielded to calomel injections. This patient had a compensated cardiac murmur, but was not affected unfavorably by the remedy.

THE ACTION OF EHRLICH-HATA'S REMEDY UPON THE SYPHILITIC PROCESS.—Meirowsky (*Medizinische Klinik*, No. 42, 1910, p. 1653) used the Ehrlich remedy in 80 cases, and concludes from his observations that the therapeutic claims which have been made for arsenobenzol are fully justified. Only one case showed itself resistant to the treatment. This was a malignant syphilis in which the intravenous injections of 0.4 gramme of arsenobenzol did not have the slightest effect upon a "syphilitic lupus." Possibly, in this case the spirochetæ had already become *arsenfast*. There was evidence in some cases, which represented all stages of syphilis, that a single injection did not supply a sufficient amount of arsenic for a complete cure. The specific lesions recurred to a certain degree, and yielded completely only after a second injection. Satisfactory results were obtained also in two cases of parenchymatous keratitis. An interesting point was the beneficial action of arsenobenzol upon syphilitic nephritis, in which mercury is not so valuable on account of its irritant properties. In concluding, the author points out that so far as the use of arsenobenzol has not proved to be the absolute and permanent cure which is implied by the term of "sterilizing treatment." He has observed secondary symptoms in a patient in whom an injection of 0.6 of arsenobenzol was given a few days after the appearance of the primary sore. He believes that *the proper method of procedure for the present is the use of Ehrlich's remedy in the early stages of the disease, followed by a course of treatment with mercury and iodides*. As regards the technique, the author remarks that the use of the alkaline solution of Alt is very painful; the method of Wechselmann and Lange (neutral suspension) almost always leads to painful infiltrates when used sub-

cutaneously. The best method thus far is the intramuscular injection of Wechselsmann's emulsion. The parafin emulsion suggested by Kromayer is not endorsed by the author.

THE VALUE OF TUBERCULIN IN TUBERCULOSIS OF THE URINARY TRACT.—Hugh Cabot (*Boston Med. and Surg. Journal*, Sept. 22, 1910) remarks that the use of tuberculin as a curative agent has been on trial for many years, but its use in lesions of the genito-urinary tract is comparatively recent. This is certainly true of its successful use, and is probably due to the fact that our knowledge of these lesions has increased rapidly of late years and he has, therefore, been able to use tuberculin with better understanding and in more appropriate cases. In general, its use is not to be advised, and little benefit can be expected in the presence of massive tubercular lesions, from which constant reinfection can occur. More recent knowledge has enabled these lesions to be dealt with surgically, leaving only a modicum of the disease in which milder measures may be effective. In his experience the brilliancy of the results has been inversely proportionate to the severity of the disease, and tuberculin has been chiefly valuable in stamping out the secondary processes in the bladder and ureter.

The cases in which he used it may be divided roughly into two classes:

(1) Those in which the disease has been apparently completely removed, as in unilateral kidney infections without bladder involvement. In these cases its use has resulted in permanent and prompt wound healing, in contrast to cases in which sinus follows operation, leading either to the stump of the ureter or to the pedicle. While cases of this type usually recover under ordinary methods, it has seemed that the tuberculin saves much time and anxiety to the patient.

(2) Those cases in which though the principal focus of the disease has been removed, a certain amount still remains. As types may be taken, the unilateral kidney lesions with bladder involvement and unilateral lesions of the epididymis and vas, with involvement of the prostate. The author calls attention particularly to the second class of cases and emphasizes the fact that tuberculin has been a distinct addition to other methods of treatment. The use of tuberculin in the first class of cases has resulted in perfect wound healing. The tuberculin used was a bouillon filtrate made by Trudeau. The initial dose was usually 0.005 mgm., increasing gradually to 0.1 mgm., then still further to 10 mgm., always avoiding reactions. Three cases are reported in detail.

BACTERIAL VACCINES IN PYOGENIC INFECTIONS OF THE URINARY TRACT.—H. P. Hartwell (*Boston Med. and Surg. Journal*, Sept. 22, 1910) reports on a series of 25 cases treated for urinary infections by means of vaccines. Most of these were infections with one of the colon group of bacilli. The results were very disappointing, and the author concludes that vaccines are completely unavailing in colon infections which produce a chronic pyelitis or a pyelonephritis in women and young girls. Vaccines are indicated in acute pyelitis which does not respond to other measures. They will probably furnish us a means of attacking post-operative foci, such as an infected ureter stump, which are difficult otherwise to clear up. In cystitis, in a limited number of cases, they offer a less troublesome, possibly a more rapid, therapy than that by irrigations and urinary antiseptics.

THE GONORRHEAL VACCINE TREATMENT AND THE ANTIGONOCOCCIC SERUM TREATMENT IN REFERENCE TO GONORRHEA AND ITS COMPLICATIONS, BUT WITH PARTICULAR REFERENCE TO JOINT INVOLVEMENTS.—Louis E. Schmidt (*Therapeutic Gazette*, Sept. 15, 1910) summarizes his experience with gonococcus vaccines and serum in 70 cases, as follows:

1. That the site of injection of either a vaccine or a serum is of no importance as to the therapeutic action, yet on account of local symptoms that may arise the deep or intramuscular mode of administration, particularly into the gluteal region, is both the most desirable mode and place for the injection.

2. That the technique to be followed is the one which requires strict asepsis.

3. That satisfactory results have been noted with the use of serum as well as with vaccine in the various kinds of cases.

4. That antigonococcic serum seems to be used to the greatest advantage in acute or subacute gonorrheal toxemic cases—those cases which are so often referred to as “gonorrheal rheumatism”; that serum is of no practical value in the inveterate, long-standing cases.

5. That the vaccine mode of therapy has shown satisfactory results in true gonorrheal arthritic conditions—where undoubted metastatic conditions are present and where a gonococcemia is probably present. In the very acute attacks especially good results were noted. Yet it is also to be recommended in the subacute and chronic cases of this type.

6. That serum therapy has not been of as great value in the metastatic or gonococcemic conditions; that vaccines are to be used in these cases with greater expectations.

7. As to the dosage of serum, that it is desirable to commence with small dosages, at 2 c.c., to repeat or even to increase to 4 c.c. on the second or third day; if no improvement is noted, to increase to 6 or even 8 c.c., to be given every fifth day. In general, the smaller the dose the more quickly can it be repeated; the larger the dose, the greater the interval between injections. Furthermore, the large majority of cases require fully 30 to 50 c.c. of the serum.

8. That the dosage of the vaccine must vary as to the case—comparatively small doses, 10,000,000 to 30,000,000 bacteria, to the acute gonorrheal joints are usually sufficient. In the subacute or chronic cases 30,000,000 to 50,000,000 bacteria have shown the best results. In both instances I am inclined to believe that the best results were noted when injections were given about five days apart.

9. That by looking over the percentage figures as cured it will be noted that they are small; the improved class is high. Undoubtedly many cases could easily be placed in the cured column and make the results look a great deal more favorable.

FUNCTIONAL DISORDERS OF THE GENITO-URINARY SYSTEM.—E. O. Smith (*Interstate Medical Journal*, Oct., 1910) says that this class of cases has not been given the consideration it deserves, neither by the general practitioner nor by the specialist. They have too often been looked upon lightly and indifferently, and after having gone from one physician to another, receiving the same indifferent treatment from all, they go from our care to the ever-present charlatan, where they are not only not made better, but are in a worse state than before. If the real condition of these patients was recognized and properly taken care of by the first physician consulted, satisfactory results would more often be obtained. These patients are real sufferers and need a very definite and positive treatment.

The disturbance in these patients is of psychical origin, and it is the influence of the mind and of mental impressions and representations, which not only causes the disorder, but keeps it ever before them as irremediable. It must be determined beyond all doubt that there is no organic disease present. This is done by a most careful and thorough examination of the entire body. Having satisfied yourself that the trouble is of psychical origin, it must receive psychical treatment. The patient must be made master of himself by educating his reason. He must be assured that his trouble is functional and not organic, and that treatment must be directed to the source of his trouble and not to what he considers local and organic.

Local treatment, by means of electricity, sounds, douches, etc., should be scrupulously avoided in such cases. Aside from psychotherapy, the patient's general condition should be taken care of *e. g.*, any anemia, constipation, faulty diet, etc., corrected.

Pollakiuria, or abnormally frequent urination, may be purely nervous in origin. In such cases the quantity passed in twenty-four hours is normal, and the urine shows no renal disease, no cystitis, etc. The patient should be told to keep his mind off the bladder and he will gradually void that organ less frequently.

Phosphaturia is very frequent among this class of cases. It may be so marked that the urine is cloudy, or there may be even frothing as it passes from the urethra. Careful inquiry into the patient's habits as to diet and drink may explain the condition, and a few drops of nitric acid in the urine, with a proper explanation to the patient of the meaning of the condition and the test will dispel from his mind any gross error in his interpretation of the cloudy urine. However, phosphaturia must not be mistaken for bacteriuria and *vice versa*.

Onanism and its effects on the general health have been exaggerated, and many young men are sexual neurasthenics because they have been led to believe that their early practices—or, perhaps better malpractices—have so undermined their entire physical constitution and so disordered their sexual organs that they can never again become normal.

A thorough physical examination, careful instructions as to the proper food, exercise and hygiene, with a positive assurance that his former indiscretions have nothing at all to do with his present condition and must be entirely forgotten, will often bring about a healthy confidence that means success.

Nocturnal emissions are usually physiological and their frequency within physiological limits will vary with different individuals. Unless they are abnormally frequent, in which case there is a cause, such as chronic urethritis, prostatitis or seminal vesiculitis, the patient's mind can be put at ease concerning "the terrible drain on his constitution from these night losses." Again it must be determined that there is no organic trouble, then proceed as in the other cases.

GONOCOCCUS INFECTION OF THE KIDNEY, WITH REPORTS OF CASES.—F. R. Hagner (*Medical Record*, Oct. 1, 1910) reports a case of gonococcus infection of the renal pelvis, pointing out the rarity of such cases, and stating that he could find 25 cases of this sort on record, 16 of which were instances of mixed infection. The patient whose case is related by Hagner had had gonorrhea ten years before, and a second

attack six weeks before the present illness. Pain in the inguinal region, radiating towards the loin, was complained of, and was aggravated in the recumbent position. As the urine remained purulent, although the urethra and annexa had been thoroughly treated, cystoscopy was performed, and wormlike masses of purulent material were seen issuing from the right ureter. The pus contained numerous gonococci, identified by culture. The treatment consisted of washing the pelvis with 25% argyrol, and the administration of gonococcus vaccine. The patient's urine cleared up and the pyuria did not recur after five months.

BETA-EUCAINE ANESTHESIA IN PROCTOLOGY.—In a paper read before the Medical Society of the Borough of the Bronx, New York (*Medical Review of Reviews*, Sept., 1910) Dr. Samuel Goodwin Gant, Professor of Diseases of the Rectum and Anus in the New York Postgraduate Medical School and Hospital, states that in his experience with Beta-Eucaine, which extends over ten years, has been universally satisfactory. He prefers this anesthetic because it can be sterilized, does not irritate and invariably produced a more complete anesthesia and caused less toxic manifestations than cocaine, stovaine, novocaine, and like agents, when used in an equal strength and quantity. In fact, when beta-eucaine is employed in $\frac{1}{8}$ per cent. solution in ano-rectal operations, the patient rarely complains of pain, dizziness, turns pales, becomes excited or faints during or following the operation. This is partly due to the non-toxic effect of the drug and partly to the fact that the solution is very weak and escapes during or following operation.

The author pleads for a more frequent use of local anesthesia, especially of infiltration anesthesia, in cases where now general narcosis is being unwarrantedly used.

EHRlich-HATA REMEDY—"606."—Dr. B. C. Corbus (*J. A. M. A.*, Oct. 22) makes a preliminary report from personal observation of the use of this preparation in Weichselmann's clinic in Berlin. He states that he can testify that spirochetes begin to disappear in from eighteen to twenty-four hours after injection of the remedy. Corbus states that the number of different techniques is surprising and confusing, as each clinician has his own. Corbus prefers Lesser's technic, which he describes as follows: Take a graduated cylinder with ground glass stopper, in which there are about one dozen glass pearls to assist in mixing. Add "606" salt; immediately add 15 c.c. hot water, shake vigorously until every particle of the salt is dissolved; then add 2 c.c. normal sodium hydrate (NaOH) solution; a precipitate occurs. Then con-

tinue to add sodium hydrate solution in very small quantity, shaking vigorously after each addition, until the solution begins to clear; then drop by drop, until we have a clear solution. This should be neutral; if the cylinder does not contain 20 c.c. of solution, sterile water is added up to that amount. Then 10 c.c. of this solution is injected deep into the buttocks on either side, always taking care to cleanse the parts with soap, water and iodine. In every instance patients should be sent to the hospital for treatment, and care should be taken that they rest for one-half hour after the injection. Corbus concludes his article by saying that looking into the future, it seems hard to prophesy what we are to expect from a single injection. In order that our results may fulfil the theory of Ehrlich's "therapia sterilisans magna," the following conditions are necessary: First, one must not administer "606" in any condition that is not of spirochetal origin. Second, there must be absolute certainty of diagnosis by means of the Wassermann reaction or by examination for spirochetes. Third, the most careful and painstaking technique in preparing the substance for injection and in the injection itself must be observed.

LUBRICANTS FOR CATHETERS AND CYSTOSCOPES.—E. R. W. Frank (*Medizinische Klinik*, October 16, 1910) reviews the history of the catheter lubricants and criticises those ordinarily employed. The disadvantages of the fatty lubricants are well known. Glycerine and its compounds are better than the fats, but present also some marked disadvantages. In the first place, glycerine is not as slippery as it might be, so that in cases of difficult strictures and prostatic hypertrophy it may fail. In order to be available for use in the urethra, glycerine must be sterilized by boiling. Very frequently the glycerine of commerce contains traces of sulphuric acid. If a cystoscope lubricated with glycerine is introduced into a bladder filled with liquid, the hygroscopic properties of the glycerine cause swirls in the fluid, which for a short time interfere with vision. Persons with sensitive mucous membranes experience a disagreeable burning sensation when glycerine is used.

All these considerations led to the introduction of modified lubricants, which were devised by Guyon, Kraus, Zuckerkandl and Casper. But even these have their drawbacks. Thus, the soap lubricant of Guyon is not transparent, and after introducing the cystoscope we must wait always until the soap is dissolved. Inasmuch as soap bases are more or less alkaline in reaction, they form precipitates with solutions such as boric acid and mercury oxycyanide, which cloud the solution.

This disadvantage is avoided in Casper's "catheter-purin." This preparation, however, does not adhere to the surfaces of metallic instruments, but has a tendency to drip off, thus materially interfering with its lubricant properties.

Frank has, therefore, devised two lubricants, one for the cystoscope and the other for use with catheters. The preparation consists of a solution of a sodium compound of a fatty acid of high molecular constitution in glycerine. The mixture is transparent, syrupy in consistency, and adheres well to the instruments. It has the same lubricant quality as oil. Although it is perfectly neutral when prepared, it is impossible to avoid sometimes a slight excess of alkali. For this reason the author recommends a special lubricant for cystoscopes, which he calls his cystoscope cream. The latter is prepared by a special method with glycerine, which is concentrated and mixed with tragacanth. This preparation is less viscid than the catheter lubricant, but more viscid than ordinary glycerine. Both preparations are prepared in a perfectly sterile manner, and are dispensed in special glass receptacles, provided with small rubber bulbs, with the aid of which a sufficient amount of the lubricant can be expressed. The advantage of these lubricants is that they are soluble even in cold water. (Frank's catheter and cystoscope lubricants are for sale by all druggists in Germany, and are prepared by the Kaiser Friedrich Apotheke, Berlin N. W. 6.)

CHICAGO UROLOGICAL SOCIETY

October, 1910, Meeting

DISCUSSION OF THE USE OF "606"

DR. HERBST showed a case of chancre in a man of twenty, with early secondary skin eruption of three months' duration. Treatment with Ehrlich's "606" had been begun nine days before. Patient showed a distinct Herxheimer reaction. He was given 0.6 gm., but there was not much improvement either in the eruption or the mucous patch. The Wassermann reaction had been positive.

DR. W. L. BAUM reported the experiences of the Berlin clinics with "606." The results were very gratifying as a rule. One should, however, be very careful in administering this remedy in tabetic cases with weak hearts, or in cases of syphilis showing eye lesions. There were twelve deaths in the former class of cases, according to Ehrlich. Dr. Baum stated that the enthusiasm in general was less during the fall months, during which time he had observed the use of the remedy in Berlin, than earlier, during the summer, and the general feeling existed

that only the future could determine whether "606" could produce a lasting cure.

DR. W. T. BELFIELD stated that in his belief lesions of the mucous membranes heal more rapidly after the administration of "606" than they would after the use of mercury. Cutaneous lesions, however, healed much more slowly than they did when mercury was administered. He stated that there was no reason to believe that "606" was a specific in eradicating the disease. In regard to the Wassermann reaction, he stated that it was also not specific, a number of other diseases showing this reaction. In general, however, it may be said that "606" works more rapidly than mercury. Recurrences after the use of "606" were by no means infrequent.

DR. EFFIE L. LOBDELL, by invitation, reported her observation of the use of "606" in fifty infants suffering from congenital syphilis and treated in the Berlin clinics. In almost every case in which the remedy had been used there was marked improvement of the general condition of the infant.

BOOK REVIEW

CYSTOSCOPY AS AN ADJUVANT IN SURGERY. By Staff Surgeon O. Rumpel, Berlin. English translation by P. W. Shedd, M. D., New York. The Rebman Company, New York. Price, \$8.50.

This atlas, containing 85 beautiful illustrations in color and 22 figures in the text, is a valuable addition to the library of the cystoscopist. The illustrations represent the work of many years in the Surgical Clinic of the Berlin University, and include every known lesion of the bladder and ureters that can be demonstrated by the cystoscope.

The drawings are by Max Queisser, and are not only beautiful to look at, but extraordinarily true to life, as is all of this artist's work. The author states in his preface that most of the cases illustrated went to operation, hence the clinical picture was confirmed by the histologic examination.

In the text, of which there are 59 solid pages, the author pays particular attention to the subject of anomalies. He lays much stress, and rightly so, we believe, on the importance of verifying the course and relations of the ureters with the aid of the Röntgen examination. The combined examination with the metal ureteral catheter and the skia-graph, will often prove of inestimable value.

In discussing cystitis, the author emphasizes a point not often recognized by the enthusiastic cystoscopist, namely, that generally there will occur a diminution in the endoscopic field of vision in direct ratio to the

gravity and extent of the inflammatory process; hence the usefulness of the cystoscope in these severe inflammations is markedly diminished, and unless there is some special indication for the examination, cystoscopy should be avoided in severe acute cystitis.

Referring to the commonly accepted view that surgical measures applied to the tuberculous kidney will bring about relief and cure of the bladder involvement, the author says he has been unable to demonstrate a complete *restitutio ad integrum* in the anatomic sense, possibly because most of the observations were not continued over a sufficiently long period of time. Nevertheless, distinct proof was offered by the cystoscope that the specific tuberculous process in the bladder, the nodules and ulcerations disappeared completely without any local bladder treatment. If, however, after removal of the primary focus the bladder conditions remain, energetic local treatment, such as the carbolic acid irrigations recommended by Rovsing, is positively indicated, and the cystoscope will give the necessary indications.

The author, speaking of bladder tumors, seems to look with some disfavor on the endovesical removal of these growths. He points out the fact that the advantage of the minimum amount of disturbance is counterbalanced by the difficulty of total extirpation. He favors the *sectio alba* for all sessile tumors with broad base and for large growths. No mention is made of the treatment of these growths endovesically with the high frequency current, as suggested by Beer.

The author believes the cystoscope is indicated in making a diagnosis in hypertrophic prostate, not in order to determine the presence of hypertrophy, but rather to supplement this information with additional knowledge of existing conditions in the bladder. The danger of infection and trauma is practically nil, if the examination is properly made and the amount of information derived through the examination is very great. As to vesical calculi, while radiography gives equally reliable data as to number and size, only direct examination with the cystoscope tells us whether the stone lies loose in the fundus, whether it is hidden among the folds of mucous membrane, or retained in a diverticulum or a recess behind the prostate. Every case of calculus should therefore be examined with the cystoscope.

Altogether the volume is an excellent one, and worth having. The typography and binding are of the usual Rebman excellence.

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CONTENTS—DECEMBER

ORIGINAL ARTICLES

Report of an interesting case of renal calculi. By FERDINAND C. WALSH, M.D., San Antonio, Texas	545
Toxic anuria due to bichloride of mercury, with a pathological report. By LOUIS GROSS, M.D., San Francisco	548
Traumatic and post-operative retention of urine. By CHARLES GREENE CUNSTON, M.D., Boston	551
Normal urine in a patient with a right pyonephrosis. By G. W. WARREN, M.D., New York	562

REVIEW OF CURRENT UROLOGIC LITERATURE

Cystic kidneys	564
The function of the kidney after nephrectomy	565
Stones in the lower part of the urinary tract	566
Implantation of the ureter into the rectum	566
Sterile and dry catheters	566
Urinary calculi in Finland	566
Studies upon the stroma of the kidneys	569
Value of tests for urease in clinical diagnosis	569
Operation for congenital incontinence	570
Para-urethral abscess treated with leukofermantin	571
Effect of Momburg's ligature on the kidneys	572
Can syphilis be aborted?	572
Technique of preparing solutions of "606"	573
History of an old specific	575
Horseshoe kidney and hydronephrosis	575
Nephropexy	576
The mechanical theory of calculous anuria	577
The straining of spirochaeta pallida in the living state, by Meiroffsky's method	578
The abortive treatment of acute gonorrhea	578
Spermatorrhea and impotence due to disease of the prostate	579
The Porges reaction in syphilis	579
Experience with Dungern's method of serum diagnosis in syphilis	580
The therapeutic action of the serum of patients after treatment with Ehrlich's arsenobenzol upon the symptoms of hereditary syphilis in a nursling	582
Experience with the Ehrlich-Hata remedy in the treatment of syphilis	582
The action of Ehrlich-Hata's remedy upon the syphilitic process	583
The value of tuberculin in tuberculosis of the urinary tract	584
Bacterial vaccines in pyogenic infections of the urinary tract	585
The gonorrheal vaccine and antigonococcic serum treatments	585
Functional disorders of the genito-urinary system	586
Gonococcus infection of the kidney, with reports of cases	587
Beta-eucaine anesthesia in proctology	588
Ehrlich-Hata remedy—"606"	588
Lubricants for catheters and cystoscopes	589
Chicago Urological Society meeting	590

BOOK REVIEW

Cystoscopy as an Adjuvant in Surgery. Rumpel	591
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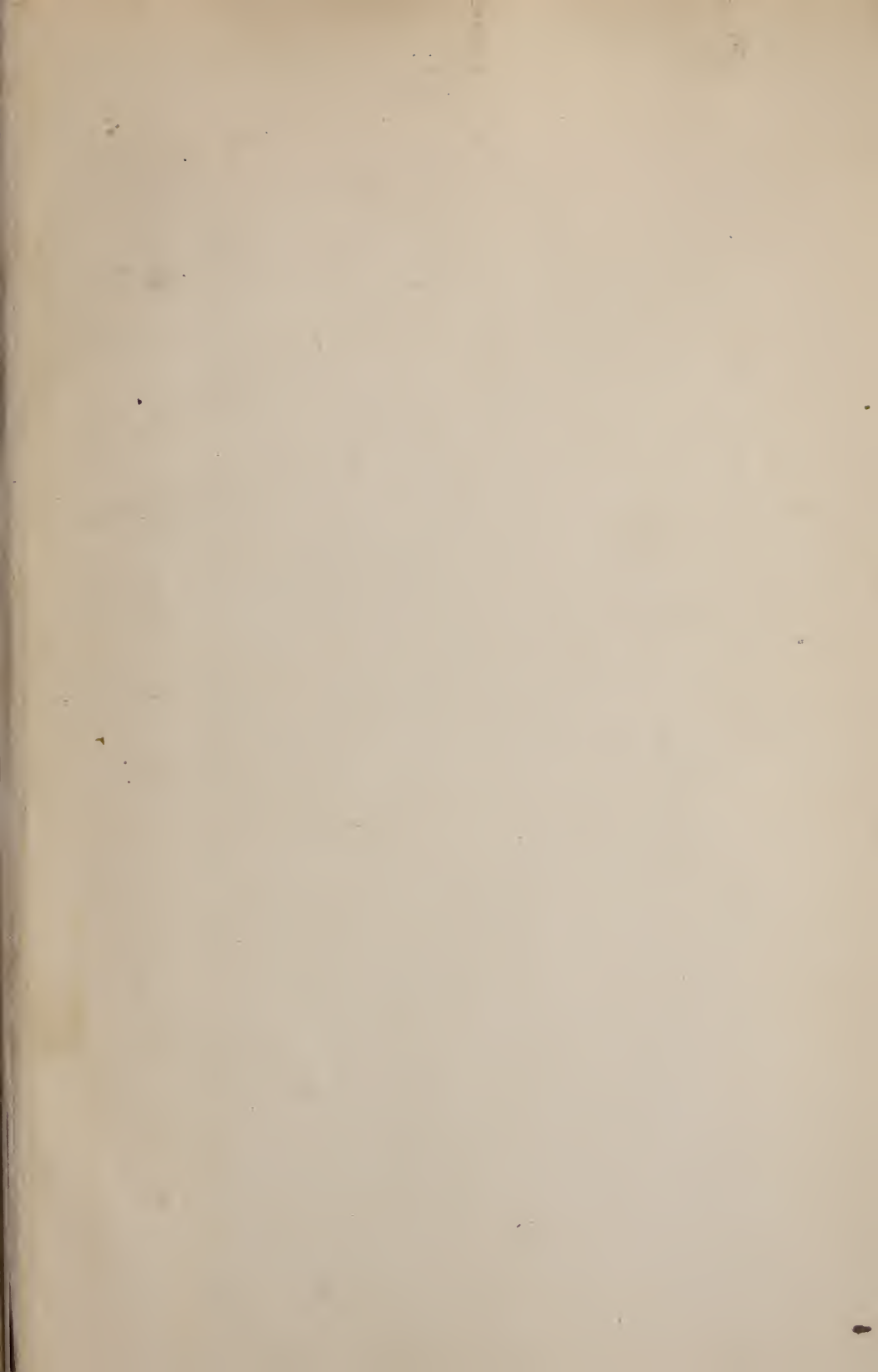
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